

Remarks

Claims 36 to 51 remain pending.

Attorney Ruggiero wishes to thank Examiner Venkat for the courtesies extended to Attorneys Zeller and Dean and Inventor Menon during the telephone interview on October 12, 2005.

Claims 36 to 51 have been rejected under 35 U.S.C. 112, first paragraph, for lack of enablement. The Action stated that there was no etiology for the treatment of cellulite. In support of this statement, the Action quoted from an abstract for the article Avram, Cellulite: a review of its physiology and treatment, J. Cosmetic & Laser Therapy, v. 6, Issue 4, p. 181-5 (Dec. 2004): "There are no truly effective treatment for cellulite". The Action also quoted from an abstract for the article Van Vliet, An assessment of traditional and novel therapies for cellulite, J. Cosmetic & Laser Therapy, 2005, 7/1 (7-10) for the proposition that "... there is no consensus as to the etiology of cellulite".

The rejection of claims 36 to 51 under 35 U.S.C. 112, first paragraph, for lack of enablement is overcome in view of the remarks below and the attached Declaration under 37 C.F.R. 1.132 by Dr. Peter M. Elias.

First, applicant does not agree with the Examiner's conclusions regarding the Avram and Van Vliet abstracts. Thus, Avram identifies four hypotheses that for the physiology of cellulite and further identifies four categories of treatment modalities. The last sentence is a qualitative one, inasmuch as the phrase "effective treatment" is modified by the adverb "truly". Van Vliet states that "There are numerous treatments

for cellulite including topical, surgical, laser and other therapies". As to the causation of cellulite, Van Vliet merely indicates that there is no consensus regarding the etiology of cellulite.

Second, Dr. Elias, in his Declaration, states that disclosure of the present application clearly articulates the invention as set forth in the claims 36 to 51 and places him, a person skilled in the art, in possession of it. Dr. Elias states that Examples 1 and 2 of the present application clearly demonstrate the stabilizing effect of perilla oil on PPAR upregulation. Dr. Elias states that page 1, lines 12 and 13 of the 09/521,442 application directly associates the treatment or amelioration of cellulite with the upregulation of PPAR, and that this association is logical and reasonable.

The Continuation of Substance of Interview of the Interview Summary of October 12, 2005 stated there was no nexus between cellulite and the prevention of upregulation of PPAR. The Continuation of Substance of Interview further stated that competent documentation establishing this nexus would be given careful consideration.

There is indeed a nexus between the formation of cellulite and the upregulation of PPARgamma receptors. Dr. Elias, in his Declaration, provides a description of the physiology of cellulite at page 1 bridging to page 2, and states that blocking PPARgamma receptors would be a logical means for treating or ameliorating cellulite since PPARgamma receptors regulate adipocyte growth and differentiation. Dr. Elias states that blocking could be achieved by two different mechanisms: 1) down-regulation of PPARgamma receptor levels, and 2) competitive inhibition with endogenous PPARgamma activators, thereby reducing

(i.e., stabilizing) the numbers of PPARgamma receptors that are available to be activated. The foregoing statements by Dr. Elias are deemed a sufficient showing of a nexus between the formation of cellulite and the upregulation of PPARgamma receptors.

Third, the rejection of claims 36 to 51 under 35 U.S.C. 112, first paragraph, for lack of enablement in view of the quoted statements in the abstracts is not well taken. The Action quoted two abstracts that conjectured that there are no effective treatments for cellulite or that there is no consensus as to the etiology of cellulite. A search of the USPTO issued patent database (1976 to date) revealed 32 patents having the term "cellulite" in their titles (search report attached). A review of the listed titles reveals methods and/or compositions for treating, reducing, or removing cellulite. Apparently, the etiology, physiology of formation, and anatomical structure of cellulite are understood well enough that numerous methods and/or compositions for treating, reducing, or removing cellulite have been proposed and patented.

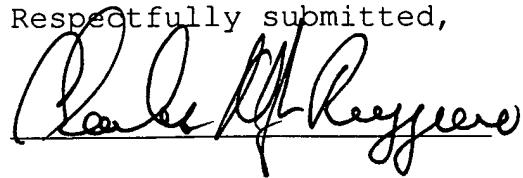
Finally, claims 36 to 51 are novel and nonobvious in view of the prior art. To this end, no particular prior art has been cited against the claims. Dr. Elias, in his Declaration, further adds that he is not aware that PPARgamma stabilizers, including perilla oil, have been employed to treat cellulite in the skin biology or dermatology art outside of the disclosure in the present application. Dr. Elias also adds that the use of PPARgamma stabilizers, including perilla oil, in the treatment or amelioration of cellulite is new and not obvious to him.

Dr. Elias is a paid consultant for Avon Products Inc.

Reconsideration of claims 36 to 51 is deemed warranted in view of the foregoing, and allowance of said claims is earnestly solicited.

Dated: May 19, 2006

Respectfully submitted,



Charles N. J. Ruggiero
Reg. No. 28,468
Attorney for Applicants
Ohlandt, Greeley, Ruggiero
& Perle, L.L.P.
One Landmark Square
Stamford, CT 06901-2682
Tel: 203-327-4500

USPTO PATENT FULL-TEXT AND IMAGE DATABASE[Home](#)[Quick](#)[Advanced](#)[Pat Num](#)[Help](#)[Bottom](#)[View Cart](#)*Searching US Patent Collection...***Results of Search in US Patent Collection db for:****TTL/cellulite: 32 patents.***Hits 1 through 32 out of 32*[Jump To](#)[Refine Search](#)

ttl/cellulite

PAT. NO. Title

- 1 [6,988,979 T Cellulite reducing bench](#)
- 2 [6,953,583 T Use of conjugated linoleic acid \(CLA\) for the topical treatment of cellulite](#)
- 3 [6,916,328 T Percutaneous cellulite removal system](#)
- 4 [6,743,215 T Method and apparatus for skin absorption enhancement and cellulite reduction](#)
- 5 [6,687,537 T Method and apparatus for skin absorption enhancement and cellulite reduction](#)
- 6 [6,676,977 T Pharmaceutical compositions and methods for reducing the appearance of cellulite](#)
- 7 [D482,127 T Cellulite reduction tool](#)
- 8 [6,596,289 T Anti-cellulite pantyhose](#)
- 9 [6,539,946 T Alternating pressure method for cellulite reduction](#)
- 10 [6,511,445 T Cellulite massage system with gel dispenser](#)
- 11 [6,443,914 T Apparatus and method for preventing and treating cellulite](#)
- 12 [6,394,946 T Treatment of cellulite](#)
- 13 [D456,522 T Cellulite reducing device](#)
- 14 [6,358,539 T Pharmaceutical compositions for reducing the appearance of cellulite](#)
- 15 [D438,977 T Cellulite handle](#)
- 16 [6,153,207 T Anti-cellulite pantyhose](#)
- 17 [6,071,526 T Cosmetic or cosmetic product for firming and soothing the skin in particular in the case of cellulite](#)
- 18 [D423,677 T Cellulite massager](#)
- 19 [D423,109 T Cellulite reducing device](#)
- 20 [5,962,482 T Method of reducing cellulite in mammalian skin](#)
- 21 [5,945,109 T Cosmetic or cosmetic product for firming and smoothing the skin, in particular in the case of cellulite](#)

BEST AVAILABLE COPY

- 22 D400,261 T Anti cellulite device
 - 23 5,778,894 T Method for reducing human body cellulite by treatment with pulsed electromagnetic energy
 - 24 5,776,074 T Dynamic system of survey and selection of treatments of cellulite
 - 25 5,705,170 T Herbal cellulite treatments
 - 26 5,667,793 T Skin care compositions for treating cellulite
 - 27 5,587,396 T Method of ameliorating cellulite by disrupting the barrier function of the stratum corneum
 - 28 5,536,499 T Cosmetic compositions for reducing or preventing signs of cellulite
 - 29 5,051,449 T Treatment of cellulite with retinoids
 - 30 5,030,451 T Topical slenderizing formulation containing caffeine carboxylic acid derivatives neutralized by organic bases, preparation thereof, and their use in the treatment of cellulite
 - 31 4,829,987 T Mineral body wrap combined with exercise for treating cellulite
 - 32 4,086,922 T Method and apparatus for treating cellulite containing areas of the human body

Top

[View Cart](#)

Home

Quick

Advanced

Pat Num

Help

PETER M. ELIAS, M.D.

CURRICULUM VITAE

DATE OF BIRTH: April 1, 1941

PLACE OF BIRTH: Waltham, Massachusetts

EDUCATION:

Stanford University, Stanford, California - B.A.	1963
University of California, San Francisco - M.D.	1967
University of California, San Francisco - M.S.	1975

POSTDOCTORAL TRAINING:

Rotating Internship, King County - Harborview Hospital, Seattle, Washington	1967-1968
Resident in Internal Medicine, University of California, San Francisco, California	1968-1969
Clinical Associate, Dermatology Branch, National Cancer Institute, Bethesda, Maryland	1969-1970
Dermatology Resident, Clinical and Research Fellow, Harvard Medical School, Boston, Massachusetts	1971-1973
Dermatology Foundation, and NIH Fellow, Department of Pathology, University of California, San Francisco, California	1973-1975

BOARD CERTIFICATION:

Dermatology	1973
Dermatopathology	1979

PROFESSIONAL APPOINTMENTS:

Assistant Professor, Department of Dermatology, University of California, San Francisco, California	1974-1979
Associate Professor of Dermatology	1979-1985
Chief, Dermatology Service, Veterans Administration Hospital, San Francisco,	1975-1997
Professor and Vice-Chairman, Department of Dermatology University of California, San Francisco, California	1985-present
Chairman, Field Advisory Group, Veterans Administration Central Office	1980-1983
Council on Governmental Liaison, American Academy of Dermatology	1980-1983
Medical and Scientific Committee, Dermatology Foundation	1983-1987

HONORS AND AWARDS:

Experimental Dermatology, Co-author, Gold Medal Award for Scientific Exhibits, AAD meeting	1971
N.A.T.O. Senior Fellowship in Science	1973
Author, Gold Medal Award for Scientific Exhibits, AAD meeting	1978
American Society for Clinical Investigation	1982-present
American Association of Professors	1992-present
Author, Bronze Medal Award for Scientific Exhibits, AAD meeting	1984
Experimental Dermatology, Editorial Board	1991-present
Skin Pharmacology and Applied Physiology, Editorial Board	1987-present
Robert Chesebrough Gold Medal for Research	1990
Fellow, California Academy of Sciences	1991-present
Literature Award, Society of Cosmetic Chemists	December 1992
The Journal of Investigative Dermatology, Associate Editor	1997-present
Recipient of the Paul Gerson Unna Prize	May 1999
William Montagna Award, Society for Investigative Dermatology	May 2001
Irwin H. Blank Memorial Lecturer, Wellman Laboratories, Harvard Medical School	April 2002
Maison G. deNavarre Medal Award, Society of Cosmetic Chemists	December 2002
George P. Odland Lecturer, Department of Dermatology, University of WA	May, 2003

SOCIETY MEMBERSHIPS AND PUBLIC SERVICE:

Founding Member of Society of Skin Pharmacology and Physiology
American Society for Cell Biology
Society of Investigative Dermatology
National Ichthyosis Foundation, Medical Advisory Board
American Federation for Clinical Research
American Society for Clinical Investigation
American Association of Professors
Society for Cutaneous Ultrastructure Research
Alopecia Areata Foundation, Medical Advisory Board
Society of Investigative Dermatology, Goals Planning Committee
American Academy of Dermatology, Committee on Occupational Dermatology
Dermatology Foundation, Leaders Society
Skin Pharmacology Society, Board Member

EDITORIAL BOARD MEMBERSHIPS

Journal of Investigative Dermatology
Archives of Dermatology
Dermatology
Critical Reviews of Drug Carrier Systems
Experimental Dermatology
Skin Pharmacology and Applied Physiology

Articles:

1. Elias, H., Hennig, A., Elias, P.M. Contributions to the geometry of sectioning: V. Some methods for the study of kidney structure. *Z. wiss. mikr. Anat.* 65:70-82, 1961.
2. Elias, H., Allara, E., Elias, P.M., Murthy, A.S.K. The podocytes, reexamined. *Z. mikr. - anat. Forsch.* 72:344-365, 1966.
3. Elias H., Murthy, A.S.K., Elias, P.M. Structure of the adrenal cortex in rheumatoid diseases, including some observations on the adenohypophysis. *Acta Endocr.* 51:91-113, 1966.
4. Wassermann, F.R., Elias, P.M., Tyler, S. "Analysis of size distribution of fat cells in adipose tissue at different ages." In: Quantitative Methods in Morphology (ed. Weibel, E., Elias, H.), New York:Springer, 1967, p. 46-52.
5. Elias, P.M., Epstein, W.L. Ultrastructural observations on experimentally induced foreign-body and organized epithelioid-cell granulomas in man. *Am. J. Path.* 52:1207-1224, 1968.
6. Elias, P.M., Elias, H. Excretory Organs. In: The Encyclopedia of the Biological Sciences (ed. Gray, P.) New York:Van Nostrand, 1970, p. 313-322.
7. Elias, P.M., Ornstein, L., Lutzner, M.A., Robbins, J.H. A method for studying the ultrastructure of intercellular contacts in leukocyte cultures. *Experientia* 27:116-118, 1971.
8. Elias, P.M., Krueger, G.R.F., Berard, C.W., Peck, G.L., et al. Morphology of graft-versus-host reaction in HL-A-matched bone marrow transplantation and its differential diagnosis. *Exp. Hemat.* 21:4-7, 1971.
9. Peck, G., Herzog, J., Elias, P.M. Toxic epidermal necrolysis in a patient with graft-versus-host reaction. *Arch. Dermatol.* 105:561-569, 1972.
10. Elias, P.M., Park, H.D., Patterson, A.E., et al. Osmium tetroxide-zinc iodide staining of Golgi elements and surface coats of hydras. *J. Ultrastruct. Res.* 40:87-102, 1972.
11. Elias, P.M., Montague, P., Ugel, A.R. In vitro studies on the kinetics, composition, and homology of bovine keratohyalin. *Exp. Cell Res.* 73:95-100, 1972.
12. Peck, G., Elias, P.M. Wound healing in a patient with Darier's disease: Preliminary Observations. In: Epidermal Wound Healing (ed. Maibach, H.I., Rovee, D.), Chicago:Yearbook Medical Publishers, 1972, p. 537-563.
13. Elias, P.M., Jarratt, M., Zalitis, I.E., Catalanotto, F.A. Childhood pemphigus vulgaris. *New Engl. J. Med.* 287:758-761, 1972.
14. Peck, C.L., Elias, P.M., Gray, R.G., Jr. Graft-versus-host reaction and toxic epidermal necrolysis. *Lancet* 2:1151-1153, 1972 (letter).
15. Elias, P.M., Arndt, K.A., Peck, G.L. Scalded-skin syndrome in adults. *New Engl. J. Med.* 288:582-583 (letter).
16. Elias, P.M. Medical draft resistance: A Washington, D.C. experience. *New Engl. J. Med.* 288:399-402, 1973.
17. Elias, P.M., Goldsmith, L.A. Intertriginous xanthomata in Type 2 hyperbetaipoproteinemia. *Arch. Dermatol.* 107:761-762, 1973.
18. Robbins, J.H., Elias, P.M., Ornstein, L. Intercellular lacunae: sequestered microenvironments in stimulated leukocyte cultures. *Experientia* 29:212-213, 1973.

19. Elias, P.M. Erythema nodosum and serological lupus erythematosus: Simultaneous occurrence in a patient using oral contraceptives. *Arch. Dermatol.* 108:716-718, 1973.
20. Elias, P.M., Yuspa, S., Guillino, M., et al. *In vitro* neoplastic transformation of mouse skin cells: Morphology and ultrastructure of cells and tumors. *J. Invest. Dermatol.* 62:569-581, 1974.
21. Elias, P.M. Staphylococcal scalded skin syndrome in adults. *Arch. Dermatol.* 110:295-296, 1974 (letter).
22. Elias, P.M., Fritsch, P., Tappeiner, G., Mittermayer, H. Wolff, K. Experimental staphylococcal toxic epidermal necrolysis (TEN) in adult humans and mice. *J. Lab. Clin. Med.* 84:414-424, 1974.
23. Elias, P.M., Mittermayer, H., Tappeiner, G., Fritsch, P., Wolff, K. Staphylococcal toxic epidermal necrolysis (TEN): The expanded mouse model. *J. Invest. Dermatol.* 63:467-475, 1974.
24. Elias, P.M., Friend, D.S. The permeability barrier in mammalian epidermis. *J. Cell Biol.* 65:180-191, 1975.
25. Elias, P.M., Fritsch, P., Dahl, M.V., Wolff, K. Staphylococcal toxic epidermal necrolysis: Pathogenesis and studies on the subcellular site of action of exfoliatin. *J. Invest. Dermatol.* 65:501-512, 1975.
26. Elias, P.M., Fritsch, P., Mittermayer, H. Staphylococcal toxic epidermal necrolysis: Species and tissue susceptibility and resistance. *J. Invest. Dermatol.* 66:80-89, 1976.
27. Elias, P.M., Levy, S.W. Bullous impetigo: Occurrence of localized scalded skin syndrome in adults. *Arch. Dermatol.* 112:856-858, 1976.
28. Elias, P.M., Friend, D.S. Vitamin A-induced mucous metaplasia: An *in vitro* system for modulating tight and gap junction differentiation. *J. Cell Biol.* 68:173-188, 1976.
29. Elias, P.M., Klinger, G., Montague, P. Kinetics of *in vitro* bovine keratohyalin synthesis. *Br. J. Dermatol.* 95:115-122, 1976.
30. Fritsch, P., Elias, P.M., Varga, J. The fate of staphylococcal exfoliatin in newborn and adult mice. *Br. J. Dermatol.* 95:275-284, 1976.
31. Elias, P.M. Early use of poison oak. *Lancet* 2:1417-1418, 1976.
32. Elias, P.M., Fritsch, P., Epstein, E.H., Jr. Staphylococcal scalded skin syndrome: Clinical features, pathogenesis, and recent microbiological and biochemical developments. *Arch. Dermatol.* 113:207-219, 1977.
33. Peck, G.L., Elias, P.M., Wetzel, B. Influence of vitamin A on differentiating epithelia. In: Biochemistry of Cutaneous Epidermal Differentiation. (ed. Seiji, M. and Bernstein, I.A.), University Park Press, 1977, pp. 110-126.
34. Peck, G.L., Elias, P.M., Wetzel, B. Effects of retinoic acid on embryonic chick skin. *J. Invest. Dermatol.* 69:463-476, 1977.
35. Elias, P.M., Goerke, J., Friend, D. Mammalian epidermal barrier layer lipids: Composition and influence on structure. *J. Invest. Dermatol.* 69:535-546, 1977.
36. Elias, P.M., McNutt, N.S., Friend, D. Membrane alterations during cornification of mammalian squamous epithelia: A freeze-fracture, tracer and thin-section study. *Anat. Rec.* 189:577-593, 1977.
37. Elias, P.M., Goerke, J., Friend, D.S. Freeze-fracture identification of sterol-digitonin complexes in cell and liposome membranes. *J. Cell Biol.* 78:577-596, 1978.

38. Elias, P.M., Brown, B.E. The mammalian cutaneous permeability barrier: Defective barrier function in essential fatty acid deficiency correlates with abnormal intercellular lipid deposition. *Lab. Invest.* 39:574-583, 1978.
39. Elias, P.M. Urticaria. *Med. Challenge* 10:25-37, 1978.
40. Lempert, T.E., Elias, P.M. Intraepidermal cell surface fine structure: Preservation and examination at high resolution. *Anat. Rec.* 193:927-937, 1979.
41. Fritsch, P.O., Kaaserer, G., Elias, P.M. Action of staphylococcal epidermolyisin: Further observations on its species specificity. *Arch. Dermatol. Res.* 264:287-291, 1979.
42. Fritsch, P., Elias, P.M. Mechanism of vesicle formation and classification. In: Dermatology In General Medicine (ed. Fitzpatrick, T.B., et al) McGraw-Hill, 1979, pp. 287-295.
43. Elias, P.M., Fritsch, P. Erythema multiforme. In: Dermatology In General Medicine (ed. Fitzpatrick, T.B., et al) McGraw-Hill, 1979, pp. 295-303.
44. Fritsch, P., Elias, P.M. Toxic epidermal necrolysis. In: Dermatology In General Medicine (ed. Fitzpatrick, T.B., et al) McGraw-Hill, 1979, pp. 303-306.
45. Elias, P.M., Fritsch, P. Staphylococcal scalded skin syndrome. In: Dermatology In General Medicine (ed. Fitzpatrick, T.B., et al) McGraw-Hill, 1979, pp. 306-310.
46. Elias, P.M., Friend, D.S., Goerke, R.J. Membrane sterol heterogeneity: Freeze-fracture detection with saponins and filipin. *J. Histochem. Cytochem.* 27:1247-1260, 1979.
47. Friend, D.S., Elias, P.M., Rudolf, I. Disassembly of the guinea pig sperm tail. In: The Spermatozoon. (ed. Fawcett, D.W. and Redford, J.M.) Bedford, Urban & Schwarzenberg, Inc., 1979, pp. 157-168.
48. Elias, P.M., Brown, B.E., Fritsch, P.O., Goerke, R.J., Gray, G.M., White, R.J. Localization and composition of lipids in neonatal mouse stratum granulosum and stratum corneum. *J. Invest. Dermatol.* 73:339-348, 1979.
49. Elias, P.M., Grayson, S., Caldwell, T.M., McNutt, N.S. Gap junction proliferation in retinoic acid-treated human basal cell carcinoma. *Lab. Invest.* 42:469-474, 1980.
50. Elias, P.M., Brown, B., Ziboh, V.A. The permeability barrier in essential fatty acid deficiency: Evidence for a direct role for linoleic acid in epidermal barrier function. *J. Invest. Dermatol.* 74:230-233, 1980.
51. Nemanic, M.K., Elias, P.M. In situ precipitation: A novel cytochemical technique for visualization of permeability pathways in mammalian stratum corneum. *J. Histochem. Cytochem.* 28:573-578, 1980.
52. Holick, M.F., McNeill, S.M., MacLaughlin, J., Clark, M.B., Holick, S.A., Potts, J.T., Anderson, R.R., Parrish, J.A., Elias, P.M. The epidermis: A unique organ responsible for the photobiosynthesis of vitamin D₃. In: Endocrinology '79, Raven Press, 1980, pp. 301-308.
53. Holick, M.F., MacLaughlin, J.A., Clark, M.B., Holick, S.A., Potts, J.T., Elias, P., et al. Photosynthesis of previtamin D₃ in human skin and the physiologic consequences. *Science* 210:203-205, 1980.
54. Elias, P.M. Lipids and the epidermal permeability barrier. *Arch. Dermatol. Res.* 270:95-117, 1981.
55. Elias, P.M. Epidermal lipids, membranes, and keratinization. *Int. J. Dermatol.* 20:1-19, 1981.
56. Elias, P.M., Cooper, E.R., Korc, A., Brown, B.E. Percutaneous transport in relation to stratum corneum structure and lipid composition. *J. Invest. Dermatol.* 76:297-301, 1981.

57. Elias, P.M., Williams, M.L. Retinoids, cancer and the skin. *Arch. Dermatol.* 117:160-180, 1981.
- .58. Elias, P.M., Fritsch, P., Lampe, M., Williams, M., Brown, B., Nemanic, M.K., Grayson, S. Retinoid effects on epidermal structure, differentiation, and permeability. *Lab. Invest.* 44:531-540, 1981.
- .59 Elias, P.M. Membranes, lipids, and the epidermal permeability barrier. In: The Epidermis In Disease. (ed. Marks, R. and Christophers, E.) Berlin:Springer, pp. 1-31, 1981.
60. Elias, P.M., Fritsch, P. Biology and pathogenesis of the staphylococcal scalded skin syndrome. In: The Epidermis In Disease. (ed. Marks, R. and Christophers, E.) Berlin:Springer, pp. 107-126, 1981.
61. Elias, P.M., Fritsch, P. Staphylococcal scalded skin syndrome: Clinical features, biology and pathogenesis. In: Skin Microbiology: Relevance to Clinical Infection. (ed. Maibach, H. and Aly, R.) New York:Springer Verlag, pp. 245-264, 1981.
62. Elias, P.M., Grayson, S., Gross, E.G., Peck, G.L., McNutt, N.S. Influence of topical and systemic retinoids on basal cell carcinoma cell membranes. *Cancer* 48:932-938, 1981.
63. Williams, M.L., Elias, P.M. Nature of skin fragility in patients receiving retinoids for systemic effect. *Arch. Dermatol.* 117:611-619, 1981.
64. Fritsch, P., Pohlin, G., Langle, U., Elias, P.M. Response of epidermal cell proliferation to orally administered aromatic retinoid. *J. Invest. Dermatol.* 77:287-291, 1981.
65. Epstein, E.H. Jr., Williams, M.L., Elias, P.M. Steroid sulfatase, X-linked ichthyosis and stratum corneum cell cohesion. *Arch. Dermatol.* 117:761-763, 1981.
66. Williams, M.L., Elias, P.M. Stratum corneum lipids in disorders of cornification. I. Increased cholesterol sulfate content of stratum corneum in recessive X-linked ichthyosis. *J. Clin. Invest.* 68:1404-1410, 1981.
67. Elias, P.M. Staphylococcal scalded skin syndrome (including Ritter's Disease). In: Current Dermatologic Therapy (ed. Maddin, S.) W.B. Saunders Co., Philadelphia, pp. 446-448, 1982.
68. Grayson, S., Elias, P.M. Isolation and lipid biochemical characterization of stratum corneum cell membrane complexes. Implications for the cutaneous permeability barrier. *J. Invest. Dermatol.* 78:128-135, 1982.
69. Nemanic, M.K., Fritsch, P.O., Elias, P.M. Perturbations of membrane glycosylation in retinoid-treated epidermis. *J. Amer. Acad. Dermatol.* 6:801-808, 1982.
70. Bergeld, W.F., Derbes, V.J., Elias, P.M., Frost, P., Greer, K.E., Shupack, J.L. The treatment of keratosis palmaris et plantaris with isotretinoin. *J. Am. Acad. Dermatol.* 6:727-731, 1982.
71. Rehfeld, S.J., Elias, P.M. Mammalian stratum corneum contains physiologic lipid thermal transitions. *J. Invest. Dermatol.* 79:1-3, 1982.
72. Williams, M.L., Elias, P.M. n-Alkanes in normal and pathological human scale. *Biochem. Biophys. Res. Commun.* 107:322-328, 1982.
73. Snyder, R.A., Schwartz, R.A., Schneider, J.S., Elias, P.M. Intermittent megadose corticosteroid therapy for generalized lichen planus. *J. Amer. Acad. Dermatol.* 6:1089-1090, 1982.
74. Elias, P.M. Dermatology. In: Review of General Internal Medicine. (Smith and Wyngaarden, J.B., Eds) W.B. Saunders Co., Philadelphia, 1982.

75. Elias, P.M., Grayson, S., Lampe, M.A., Williams, M.L., Brown, B.E. The intercorneocyte space. In: The Stratum Corneum, (eds. Marks, R. and Plewig, G.) Springer-Verlag, New York, pp. 53-68, 1983.
76. Williams, M.L., Grayson, S., Bonifas, J.M., Epstein, E.H. Jr., Elias, P.M. Epidermal cholesterol sulfate and steroid sulfatase activity and recessive X-linked ichthyosis. In: The Stratum Corneum, (eds. Marks, R. and Plewig, G.) Springer-Verlag, New York, pp. 79-85, 1983.
77. Lampe, M.A., Burlingame, A.L., Whitney, J., Williams, M.L., Brown, B.E., Roitman, E., Elias, P.M. Human stratum corneum lipids: Characterization and regional variations. *J. Lipid Res.* 24:120-130, 1983.
78. Lampe, M.A., Williams, M.L., Elias, P.M. Human epidermal lipids: Characterization and modulations during differentiation. *J. Lipid Res.* 24:131-140, 1983.
79. Elias, P.M., Fritsch, P.O. The staphylococcal scalded skin syndrome: Exfoliatin and pathogenesis of blister formation. Biochemistry and Physiology of skin, (ed. Goldsmith, L.), Oxford University Press, New York, pp. 1037-1055, 1983.
80. Elias, P.M., Bonar, L., Grayson, S., Baden, H.P. X-ray diffraction analysis of stratum corneum membrane couplets. *J. Invest. Dermatol.* 80:213-214, 1983.
81. Nemanic, M.K., Whitehead, J.S., Elias, P.M. Alterations in membrane sugars during epidermal differentiation: Visualization with lectins and role of glycosidases. *J. Histochem. Cytochem.* 31:887-897, 1983.
82. Snyder, R.A., Elias, P.M. Toxic epidermal necrolysis and staphylococcal scalded skin syndrome. *Dermatol. Clinics N. Amer.* 1:235-248, 1983.
83. Elias, P.M., Lampe, M.A., Chung, J-C., Williams, M.L. Diazacholesterol-induced ichthyosis in the hairless mouse. I. Morphological, histochemical and lipid biochemical characterization of a new animal model. *Lab. Invest.* 80:44-49, 1983.
84. Elias, P.M. Epidermal lipids, barrier function, and desquamation. *J. Invest. Dermatol.* 80:44s-49s, 1983.
85. Elias, P.M., Chung, J-C., Orozco-Topete, R., Nemanic, M. Membrane glycoconjugate visualization and biosynthesis in normal and retinoid-treated epidermis. *J. Invest. Dermatol.* 81:81s-85s, 1983.
86. Feingold, K.R., Brown, B.E., Lear, S.R., Moser, A.H., Elias, P.M. Localization of de novo sterogenesis in mammalian skin. *J. Invest. Dermatol.* 81:365-369, 1983.
87. Grayson, S., Johnson-Winegar, A.D., Elias, P.M. Isolation of lamellar bodies from neonatal mouse epidermis by selective sequential filtration. *Science* 221:962-964, 1983.
88. Nemanic, M.K., Whitney, J., Arnaud, S., Herbert, S., Elias, P.M. Vitamin D₃ production by cultured human keratinocytes and fibroblasts. *Biochem. Biophys. Res. Commun.* 115:444-450, 1983.
89. Elias, P.M. Stratum corneum lipids in health and disease. In: Progress in Diseases of the Skin. (ed. Fleischmajer, R.), Grune & Stratton, Inc., San Francisco, pp. 1-19, 1984.
90. Brown, B.E., Williams, M.L., Elias, P.M. Stratum corneum lipid abnormalities in ichthyosis: Detection by a new lipid microanalytical method. *Arch. Dermatol.* 120:204-209, 1984.
91. Chung, J-C., Law, M.Y.L., Elliott, S.T., Elias, P.M. Diazacholesterol-induced ichthyosis in the hairless mouse: Assay for comparative potency of topical retinoids. *Arch. Dermatol.* 120:342-347, 1984.
92. Fritsch, P.O., Elias, P.M. Staphylogene toxische epidermale Nickrolyse. In: Staphylokokken und Staphylokokken - Erkrankungen (ed. Meyer, W.) Berlin, pp. 384-385, 1984.

93. Epstein, Jr. E.H., Bonifas, J.M., Grayson, S., Williams, M.L., Elias, P.M. The epidermal cholesterol sulfate cycle. *J. Amer. Acad. Dermatol.* 10:866-868, 1984.
94. Epstein, Jr. E.H., Bystryn, J-C., Edelson, R., Elias, P.M., Lowy, D.R., Yuspa, S. Nonmelanoma skin cancer, melanomas, warts and viral oncogenesis. *J. Amer. Acad. Dermatol.* 11:960-963, 1984.
95. Bickers, D.R., Elias, P.M., Marks, R., Soter, N.A., Voorhees, J.J., Ziboh, V.A. Dermatologic needs in drugs and instrumentation. *J. Amer. Acad. Dermatol.* 11:983-989, 1984.
96. Elias, P.M., Williams, M.L., Maloney, M.E., Bonifas, J.A., Brown, B.E., Grayson, S., Epstein, Jr. E.H. Stratum corneum lipids in disorders of cornification: Steroid sulfatase and cholesterol sulfate in normal desquamation and the pathogenesis of recessive X-linked ichthyosis. *J. Clin. Invest.* 74:1414-1421, 1984.
97. Maloney, M.E., Williams, M.L., Epstein, Jr. E.H., Law, M.Y.L., Fritsch, P.O., Elias, P.M. Lipids in the pathogenesis of ichthyosis: Topical cholesterol sulfate-induced scaling in hairless mice. *J. Invest. Dermatol.* 83:253-256, 1984.
98. Williams, M.L., Elias, P.M. Elevated n-alkanes in congenital ichthyosiform erythroderma: Phenotypic differentiation of two types of autosomal recessive ichthyosis. *J. Clin. Invest.* 74:296-300, 1984.
99. Williams, M.L., Elias, P.M. Heterogeneity in autosomal recessive ichthyosis: Clinical and biochemical differentiation of lamellar ichthyosis and non-bullous congenital ichthyosiform erythroderma. *Arch. Dermatol.* 121:477-488, 1985.
100. Elias, P.M., Williams, M.L., Maloney, M.E., Fritsch, P.O., Chung, J-C. Drug-induced animal models of ichthyosis. In: *Dermatopharmacology and Dermatotoxicology*, (eds. Maibach H.I. & Lowe, N.J.), Karger, Basel, pp. 105-126, 1985.
101. Elias, P.M. The essential fatty acid deficient rodent: Evidence for a direct role for intercellular lipid in barrier function. In: *Dermatopharmacology and Dermatotoxicology*, (eds. Maibach, H.I. and Lowe, N.J.) Karger, Basel, pp. 272-289, 1985.
102. Elias, P.M., Orozco-Topete, R., Lampe, M.A., Williams, M.L., Nemanic, M.K., Grayson, S., Brown, B.E. Methods in epidermal lipid research. In: *Methods in Skin Research*, (eds. Skerrow & Skerrow), pp. 381-405, 1985.
103. Menon, G.K., Feingold, K.R., Moser, A.H., Brown, B.E., Elias, P.M. *De novo* sterologenesis in the skin. II. Regulation by cutaneous barrier requirements. *J. Lipid Res.* 26:418-427, 1985.
104. Menon, G.K., Grayson, S., Elias, P.M. Ionic calcium reservoirs in mammalian epidermis: Ultrastructural, localization by ion-capture cytochemistry. *J. Invest. Dermatol.* 84:508-512, 1985.
105. Elias, P.M., Williams, M.L. Retinoid effects on epidermal differentiation: Supramolecular vs. molecular observations. In: *Retinoid Symposium: New Trends in Research and Therapy*. (eds. Saurat, J.H., Elias, P.M., Grosshaus, E., Vahlquist, A.) New York:Springer-Verlag, pp. 138-158, 1985.
106. Elias, P.M., Williams, M.L. Neutral lipid storage disease with ichthyosis: Defective lamellar body contents and intercellular dispersion. *Arch. Dermatol.* 121:1000-1008, 1985.
107. Williams, M.L., Wiley, M., Elias, P.M. Inhibition of 3-hydroxy-3-methylglutaryl coenzyme A reductase activity and sterol synthesis by cholesterol sulfate in cultured fibroblasts. *Biochim. Biophys. Acta* 945:349-357, 1985.

108. Nemanic, M.K., Whitney, J., Elias, P.M. *In vitro* synthesis of vitamin D₃ by cultured human keratinocytes and fibroblasts: Action spectrum and effects of AY-9944. *Biochim. Biophys. Acta* 841:267-277, 1985.
109. Grayson, S., Johnson-Winegar, A.G., Wintroub, B.U., Epstein, Jr. E.H., Elias, P.M. Lamellar body-enriched fractions from neonatal mice: Preparative techniques and partial characterization. *J. Invest. Dermatol.* 85:289-295, 1985.
110. Williams, M.L., Elias, P.M. The Ichthyoses. In: Pathogenesis of Skin Disease (eds. Thiers, B. and Dobson R.L.) Churchill-Livingstone, pp. 519-551, 1985.
111. Gonzales-Rios, M., Whitney, S.C., Williams, M.L., Elias, P.M., Packman, S. Lipid metabolism in biotin-responsive multiple carboxylase deficiency. *J. Inherit. Met. Dis.* 8:184-186, 1985.
112. Williams, M.L., Elias, P.M. Ichthyosis: Genetic heterogeneity, genodermatoses, and genetic counseling. *Arch. Dermatol.* 122:529-531, 1986.
113. Menon, G.K., Grayson, S., Elias, P.M. Cytochemical and biochemical localization of lipase and sphingomyelinase activity in mammalian epidermis. *J. Invest. Dermatol.* 86:591-597, 1986.
114. Elias, P.M., Epstein, J.H. American dermatology training programs and the foreign medical graduate from less advantaged geographic areas. *Arch. Dermatol.* 122:405-406, 1986.
115. Menon, G.K., Brown, B.E., Elias, P.M. Avian epidermal differentiation: Role of lipids in permeability barrier formation. *Tissue and Cell* 18:71-82, 1986.
116. Menon, G.K., Grayson, S., Brown, B.E., Elias, P.M. Lipokeratinocytes of the epidermis of a cetacean, (Phocena phocena): Histochemistry, ultrastructure, and lipid composition. *Cell & Tiss. Res.* 244:385-394, 1986.
117. Elias, P.M., Williams, M.L., Maloney, M.E., Fritsch, P.O., Chung, J-C. Applications of the diazacholesterol animal model of ichthyosis. In: Skin Models (eds. Marks, R. and Plewig, G.) Berlin:Springer, pp 122-135, 1986.
118. Bikle, D.D., Nemanic, M.K., Whitney, J.O., Elias, P.M. Neonatal human foreskin keratinocytes produce 1,25-dihydroxyvitamin D₃. *Biochemistry* 25:1545-1548, 1986.
119. Bikle, D.D., Nemanic, M.K., Gee, E., Elias, P.M. 1,25-Dihydroxyvitamin D₃ production by human keratinocytes: Kinetics and regulation. *J. Clin. Invest.* 78:557-566, 1986.
120. Rehfeld, S.J., Williams, M.L., Elias, P.M. Interactions of cholesterol and cholesterol sulfate with free fatty acids: Possible relevance for the pathogenesis of recessive X-linked ichthyosis. *Arch. Dermatol. Res.* 278:259-263, 1986.
121. Elias, P.M. Epidermal effects of retinoids: Supramolecular observations and clinical implications. *J. Amer. Acad. Dermatol.* 15:797-809, 1986.
122. Elias, P.M. The special role of the stratum corneum. In: Dermatology in General Medicine (ed. Fitzpatrick, T.B., et al), McGraw-Hill, pp. 342-346, 1986.
123. Fritsch, P.O., Elias, P.M. Mechanisms of vesicle formation and classification. In: Dermatology in General Medicine (ed. Fitzpatrick, T.B., et al), McGraw-Hill, pp. 546-554, 1986.
124. Elias, P.M., Fritsch, P.O. Erythema Multiforme. In: Dermatology in General Medicine (ed. Fitzpatrick, T.B., et al), McGraw-Hill, pp. 555-563, 1986.

125. Fritsch, P.O., Elias, P.M. Toxic Epidermal Necrolysis. In: Dermatology in General Medicine (ed. Fitzpatrick, T.B., et al), McGraw-Hill, pp. 563-567, 1986.
126. Elias, P.M., Fritsch, P.O. Staphylococcal Scalded Skin Syndrome. In: Dermatology in General Medicine (ed. Fitzpatrick, T.B., et al), McGraw-Hill, pp. 567-571, 1986.
127. Williams, M.L., Elias, P.M. Pathogenesis of Ichthyoses. In: Scientific Basis of Dermatology: A Physiological Approach (eds. Thody, T. and Friedmann, P.), Churchill-Livingstone, pp. 175-204, 1986.
128. Feingold, K.R., Brown, B.E., Lear, S.R., Moser, A.H., Elias, P.M. Effect of essential fatty acid deficiency on cutaneous sterol synthesis. *J. Invest. Dermatol.* 87:588-591, 1986.
129. Chang, J., Brown, B.E., Elias, P.M. Histochemical and morphological studies on mammalian epidermal peridermal granules. *Br. J. Dermatol.* 114:431-440, 1986.
130. Williams, M.L., Elias, P.M. The extracellular matrix of stratum corneum: Role of lipids in normal and pathological function. *CRC Crit. Rev. In Therap. Drug Carrier Syst.* 3:95-122, 1987.
131. Williams, M.L., Elias, P.M. Genetically transmitted, generalized disorders of cornification. The Ichthyoses. In: Dermatol. Clinics N. Amer., (ed., Alper, J.C.), W.B. Saunders Company, pp. 155-178, 1987.
132. Epstein, Jr. E.H., Williams, M.L., Elias, P.M. Biochemical abnormalities in the ichthyoses. In: Current Problems in Dermatology, (ed., Honigsmann, H.), Karger:Basel, pp. 32-44, 1987.
133. Elias, P.M. Retinoid effects on the epidermis. *Dermatologica* 175:28-36, 1987.
134. Grubauer, G., Feingold, K.R., Elias, P.M. Relationship of epidermal lipogenesis to cutaneous barrier function. *J. Lipid Res.* 28:746-752, 1987.
135. Goldstein, S.M., Wintroub, B.U., Elias, P.M., Wuepper, K.D. Toxic epidermal necrolysis: Unmuddying the waters. *Arch. Dermatol.* 123:1153-1156, 1987.
136. Elias, P.M., Feingold, K.R., Menon, G.K., Grayson, S., Williams, M.L., Grubauer, G. The stratum corneum two-compartment model and its functional implications. In: Skin Pharmacokinetics, (ed. B. Shroot, H. Schaeffer, B. Shroot), Basel:Karger, pp. 1-9, 1987.
137. Williams, M.L., Feingold, K.R., Grubauer, G., Elias, P.M. Ichthyosis induced by cholesterol-lowering drugs: Implications for epidermal cholesterol homeostasis. *Arch. Dermatol.* 123:1535-1538, 1987.
138. Elias, P.M., Menon, G.K., Grayson, S., Brown, B.E., Rehfeld, S.J. Avian sebokeratocytes and marine mammal lipokeratinocytes: Structural, lipid biochemical and functional considerations. *Am. J. Anat.* 180:161-177, 1987.
139. Feingold, K.R., Williams, M.L., Pillai, S., Menon, G.K., Halloran, B.P., Bikle, D., Elias, P.M. The effect of vitamin D status on cutaneous sterologenesis in vivo and in vitro. *Biochem. Biophys. Acta* 930:193-200, 1987.
140. Williams, M.L., Rutherford, S.L., Mommaas-Kienhuis, A-M., Grayson, S., Vermeer, B.J., Elias, P.M. Free sterol metabolism and low density lipoprotein receptor expression as differentiation markers in cultured human keratinocytes. *J. Cell Physiol.* 132:428-440, 1987.
141. Feingold, K.R., Elias, P.M. Endocrine-skin interactions: Cutaneous manifestations of pituitary disease, thyroid disease, calcium disorders, and diabetes. *J. Amer. Acad. Dermatol.* 17:921-940, 1987.
142. Elias, P.M. Plastic Wrap Revisited: The stratum corneum two-compartment model and its clinical implications. Bridging the laboratory and clinic. *Arch. Dermatol.* 123:1405-1406, 1987.

143. Mommaas-Kienhuis, A-M., Grayson, S., Wijsman, M.C., Vermeer, B.J., Elias, P.M. Low density lipoprotein receptor expression on keratinocytes in normal and psoriatic epidermis. *J. Invest. Dermatol.* 89:513-517, 1987.
144. Miller, S.J., Aly, R., Shinefeld, H.R., Elias, P.M. *In vitro* and *in vivo* antistaphylococcal activity of human stratum corneum lipids. *Arch. Dermatol.* 124:209-215, 1988.
145. Grayson, S., Elias, P.M. Human epidermal proteolipids: Isolation, partial characterization, and subcellular localization. *J. Invest. Dermatol.* 90:185-192, 1988.
146. Pillai, S., Bikle, D.D., Hincenbergs, M., Elias, P.M. Biochemical and morphological characterization of growth and differentiation of normal human neonatal keratinocytes in a serum-free medium. *J. Cell Physiol.* 134:229-237, 1988.
147. Pillai, S., Bikle, D.D., Elias, P.M. 1,25-Dihydroxyvitamin D production and receptor binding in human keratinocytes varies with differentiation. *J. Biol. Chem.* 263:5390-5395, 1988.
148. Monger, D.J., Williams, M.L., Feingold, K.R., Brown, B.E., Elias, P.M. Localization of sites of lipid biosynthesis in mammalian epidermis. *J. Lipid Res.* 29:603-612, 1988.
149. Elias, P.M., Menon, G.K., Grayson, S., Brown, B.E. Membrane structural alterations in murine stratum corneum. Relationship to the localization of polar lipids and phospholipases. *J. Invest. Dermatol.* 91:3-10, 1988.
150. Williams, M.L., Rutherford, S.L., Ponec, M., Hincenbergs, M., Placzek, D.R., Elias, P.M. Density-dependent variations in the lipid content and metabolism of cultured human keratinocytes. *J. Invest. Dermatol.* 91:86-91, 1988.
151. Feingold, K.R., Elias, P.M. Endocrine-skin interactions: cutaneous manifestations of adrenal disease, pheochromocytomas, carcinoid syndrome, sex hormone excess and deficiency, polyglandular autoimmune syndromes, multiple endocrine neoplasia syndromes, and other miscellaneous disorders. *J. Amer. Acad. Dermatol.* 19:1-20, 1988.
152. Tadlock, L., Elias, P.M. Toxic epidermal necrolysis. *Curr. Conc. Skin Dis.* 9:15-19, 1988.
153. Fisher, D.A., Elias, P.M., LeBoit, P.L. Exacerbation of psoriasis by the hypolipidemic agent, Gemfibrozil. *Arch. Dermatol.* 124:854-855, 1988.
154. Williams, M.L., Brown, B.E., Monger, D.J., Grayson, S., Elias, P.M. Lipid content and metabolism of human keratinocyte cultures grown at the air-medium interface. *J. Cell. Physiol.* 136:103-110, 1988.
155. Elias, P.M. Structure and function of the stratum corneum permeability barrier. *Drug. Develop. Res.* 13:97-105, 1988.
156. Rehfeld, S.J., Plachy, W.Z., Williams, M.L., Elias, P.M. Calorimetric and electron spin resonance examination of lipid phase transitions in human stratum corneum: Molecular basis for normal cohesion and abnormal desquamation in recessive X-linked ichthyosis. *J. Invest. Dermatol.* 91:499-505, 1988.
157. Menon, G.K., Baptista, L.F., Elias, P.M. Fine structural basis of the cutaneous water barrier in nestling Zebra finches Poephila guttata. *Ibis* 130:503-511, 1988.
158. Elias, P.M. Topical retinoic acid, aging, and the skin. *Western J. Med.* 149:766-767, 1988.
159. Grubauer, G., Feingold, K.R., Elias, P.M. Lipid content and lipid type as determinants of the epidermal permeability barrier. *J. Lipid. Res.* 30:89-96, 1989.

160. Pillai, S., Bikle, D.D., Eessalu, T.E., Aggarwal, B.B., Elias, P.M. Binding and biological effects of tumor necrosis factor alpha on cultured human neonatal foreskin keratinocytes. *J. Clin. Invest.* 83:816-821, 1989.
161. Pillai, S., Bikle, D.D., Elias, P.M. Vitamin D and epidermal differentiation: Evidence for a role for endogenously produced vitamin D metabolites in keratinocyte differentiation. *Skin Pharmacol.* 1:149-160, 1988.
162. Elias, P.M. The stratum corneum: Old and new concepts. *Retinoids: Today and Tomorrow* 12:31-34, 1989.
163. Grubauer, G., Elias, P.M., Feingold, K.R. Transepidermal water loss: The signal for recovery of barrier structure and function. *J. Lipid Res.* 30:323-333, 1989.
164. Elias, P.M., Feingold, K.R. Lipid-related barriers and gradients in the epidermis. *Ann. N.Y. Acad. Sci.* 548:4-13, 1988.
165. Bibel, D.J., Miller, S.J., Brown, B.E., Pandey, B.J., Elias, P.M., Shinefield, H.R., Aly, R. Antimicrobial activity of stratum corneum lipids from normal and essential fatty acid-deficient mice. *J. Invest. Dermatol.* 92:632-638, 1989.
166. Elias, P.M. The stratum corneum as an organ of protection: Old and new concepts. In: Immunodeficiency and the Skin. (ed. P. Fritsch) Karger: Basel, 1989, pp 10-21.
167. Menon, G.K., Baptista, L.F., Brown, B.E., Elias, P.M. Avian epidermal differentiation. II. Adaptive response of permeability barrier to water deprivation and replenishment. *Tiss. & Cell* 21:83-92, 1989.
168. Greenberg, E.R., Baron, J.A., Stevens, M.M., Stukel, T.A., Mandel, J.S., Spencer, S.K., Elias, P.M., Lowe, N., Nierenberg, D.N., Bayrd, G., Vance, J.C. The skin cancer prevention study: Design of a clinical trial of beta-carotene among persons at high risk for nonmelanoma skin cancer. *Controlled Clin. Trials* 10:153-166, 1989.
169. Ponec, M., Weerheim, A., Kempenaar, J., Elias, P., Williams, M. Differentiation of cultured human keratinocytes: Effect of culture conditions on lipid composition of normal vs. malignant cells. *In Vitro* 25:689-696, 1989.
170. Elias, P.M. The importance of epidermal lipids for the stratum corneum barrier. In: Topical Drug Delivery Formulations (ed. J. Swarbrick), Marcel Dekker, Inc., New York and Basel, Vol. 42, pp. 13-28, 1990.
171. Proksch, E., Elias, P.M., Feingold, K.R. Regulation of 3-hydroxy-3-methylglutaryl-coenzyme A reductase activity in murine epidermis: Modulation of enzyme content and activation state by barrier requirements. *J. Clin. Invest.* 85:874-882, 1990.
172. Berger, T.G., Elias, P.M., Wintrob, B.U. Manual of Therapy for Skin Diseases, Churchill-Livingstone, New York, Edinburgh, London, Melbourne, 1990.
173. Elias, P.M., Williams, M.L. Alkanes: Endogenous or exogenous? *J. Invest. Dermatol.* 94:730-731, 1990.
174. Rehfeld, S.J., Plachy, W.Z., Hou, S.Y.E., Elias, P.M. Localization of lipid microdomains and thermal phenomena in murine stratum corneum and isolated membrane complexes: An electron spin resonance study. *J. Invest. Dermatol.* 95:217-223, 1990.
175. Greenberg, E.R., Baron, J.A., Stukel, T.A., Stevens, M.M., Mandel, J.S., Spencer, S.K., Elias, P.M., Lowe, N., Nierenberg, D.W., Bayrd, G., Vance, J.C., Freeman, D.H., Jr., Clendenning, W.E., Kwan, T. A clinical trial of beta-carotene to prevent basal and squamous cell cancers of the skin. *N. Engl. J. Med.* 323:789-795, 1990.

176. Williams, M.L., Elias, P.M. Bridging the laboratory and the clinic: Hydrocarbons in the skin-function or fancy? *Arch Derm.* 126:868-870, 1990.
177. Holleran, W.M., Williams, M.L., Gao, W.N., Elias, P.M. Serine-palmitoyl transferase activity in cultured human keratinocytes. *J. Lipid Res.* 31:1655-1661, 1990.
178. Feingold, K.R., Mao-Qiang, M., Menon, G.K., Cho, S.S., Brown, B.E., Elias, P.M. Cholesterol synthesis is required for cutaneous barrier function in mice. *J. Clin. Invest.* 86:1738-1745, 1990.
179. Menon, G.K., Elias, P.M. Ultrastructural localization of calcium in psoriatic and normal human epidermis. *Arch. Dermatol.* 127:57-63, 1991.
180. Koone, M.D., Rizzo, W.B., Elias, P.M., Williams, M.L., Lightner, V., Pinnell, S.R. Ichthyosis, mental retardation, and asymptomatic spasticity: A new neurocutaneous syndrome with normal fatty alcohol:NAD⁺ oxidoreductase activity. *Arch. Dermatol.* 126:1485-1490, 1990.
181. Feingold, K.R., Elias, P.M. Dermatologic complications - Associations with diabetes. *Diabetes Spectrum* 3:282-287, 1990.
182. Feingold, K.R., Mao-Qiang, M., Proksch, E., Menon, G.K., Brown, B., Elias, P.M. The lovastatin-treated rodent: A new model of barrier disruption and epidermal hyperplasia. *J. Invest. Dermatol.* 96:201-209, 1991.
183. Hou, S.Y.E., Mitra, A.K., White, S.H., Menon, G.K., Ghadially, R., Elias, P.M. Membrane structures in normal and essential fatty acid deficient stratum corneum: Characterization by ruthenium tetroxide staining and x-ray diffraction. *J. Invest. Dermatol.* 96:215-223, 1991.
184. Greenberg, R.G., Elias, P.M. Purple facial nodule. *Arch. Dermatol.* 127:571, 1991.
185. Proksch, E., Feingold, K.R., Mao-Qiang, M., Elias, P.M. Barrier function regulates epidermal DNA-synthesis. *J. Clin. Invest.* 87:1668-1673, 1991.
186. Proksch, E., Elias, P.M., Feingold, K.R. Localization and regulation of epidermal 3-hydroxy-3-methylglutaryl-coenzyme A reductase activity by barrier requirements. *Biochem. Biophys. Acta.* 1083:71-79, 1991.
187. Elias, P.M. Epidermal barrier function: Intercellular lamellar lipid structures, origin, composition and metabolism. *J. Contr. Rel.* 15:199-208, 1991.
188. Holleran, W.M., Feingold, K.R., Man, M-Q., Gao, W.N., Lee, J.M., Elias, P.M. Regulation of epidermal sphingolipid synthesis by permeability barrier function. *J. Lipid Res.* 32: 1151-1158, 1991.
189. Holleran, W.M., Mao-Qiang, M., Gao, W.N., Menon, G.K., Elias, P.M., Feingold, K.R. Sphingolipids are required for mammalian barrier function: Inhibition of sphingolipid synthesis delays barrier recovery after acute perturbation. *J. Clin. Invest.* 88:1338-1345, 1991.
190. Schurer, N.S., Plewig, G., Elias, P.M. Stratum corneum lipid function. *Dermatologica* 183:77-94, 1991.
191. Jass, H.E., Elias, P.M. The living stratum corneum: implications for cosmetic formulation. *Cosm. Toil.* 106:47-53, 1991.
192. Menon, G.K., Hou, E.S.Y., Elias, P.M. Avian permeability barrier function reflects mode of sequestration and organization of stratum corneum lipids: Reevaluation utilizing ruthenium tetroxide staining and lipase cytochemistry. *Tissue & Cell.* 48:445-456, 1991.
193. Schurer, N.Y., Elias, P.M. The biochemistry and function of stratum corneum lipids. *Adv. Lipid Res.* 24:27-56, 1991.

194. Elias, P.M., Menon, G.K. Structural and lipid biochemical correlates of the epidermal permeability barrier. *Adv. Lipid Res.* 24:1-26, 1991.
195. Elias, P.M., Williams, M.L. Endogenous vs. exogenous origin of n-alkanes: An addendum. Letter to the Editor, *Arch. Dermatol.* 127:1727-1728, 1991.
196. Elias, P.M. Role of lipids in barrier function of the skin. In: *Pharmacology of the Skin*, Hasan Muhktar (ed), CRC Press, Boca Raton, FL, pg. 29-38, 1991.
197. Resnick, S.D., Elias, P.M., Fritsch, P.O. The staphylococcal scalded skin and toxic shock syndromes. *Biochemistry and Physiology of skin*, (ed. Goldsmith, L.), Oxford University Press, New York, 1991, p. 1037-1055.
198. Menon, G.K., Feingold, K.R., Man, M-Q., Schauder, M., Elias, P.M. Structural basis for the barrier abnormality following inhibition of HMG CoA reductase in murine epidermis. *J. Invest. Dermatol.* 98:209-219, 1992.
199. Menon, G.K., Feingold, K.R., Elias, P.M. The lamellar body secretory response to barrier disruption. *J. Invest. Dermatol.* 98:279-289, 1992.
200. Lee, S.H., Elias, P.M., Proksch, E., Menon, G.K., Mao-Qiang, M., Feingold, K.R. Calcium and potassium are important regulators of barrier homeostasis in murine epidermis. *J. Clin. Invest.* 89:530-538, 1992.
201. Ghadially, R.G., Halkier-Sorensen, L., Elias, P.M. Effects of petrolatum on stratum corneum structure and function. *J. Amer. Acad. Dermatol.* 26:387-396, 1992.
202. Menon, G.K., Williams, M.L., Ghadially, R., Elias, P.M. Lamellar bodies as delivery systems of hydrolytic enzymes: Implications for normal cohesion and abnormal desquamation. *Br. J. Derm.* 126:337-345, 1992.
203. Elias, P.M. Dynamics of the epidermal barrier: new implications for percutaneous drug delivery, topical therapeutics and disease pathogenesis. *Prog. Dermatol.* 2:1-8, 1992.
204. Elias, P.M., Feingold, K.R. Lipids and the epidermal water barrier: Metabolism, regulation, and pathophysiology. *Sem. Dermatol.* 11:176-182, 1992.
205. Proksch, E., Feingold, K.R., Elias, P.M. Epidermal HMG CoA reductase activity in essential fatty acid deficiency: barrier requirements rather than eicosanoid generation regulate cholesterol synthesis. *J. Invest. Dermatol.* 99:216-220, 1992.
206. Jackson, S.M., Elias, P.M. The skin as an organ of protection. In: *Dermatology in General Medicine* (eds. Fitzpatrick, T.B., et al.). New York: McGraw-Hill, 1992.
207. Feingold, K.R. and Elias, P.M. Skin problems in the diabetes clinic. In: *Diabetes Forum Series: Concepts for the Ideal Diabetes Clinic* (ed. E. Standl, C.E. Mogensen) Berlin: de Gruyter, 1992, p. 215-233.
208. Choi, S-J., Jackson, S.M., Elias, P.M., Feingold, K.R. The role of protein synthesis in permeability barrier homeostasis. In: *The Biology of the Epidermis: Molecular and Functional Aspects* (ed. A. Ohkawara, J.S. McGuire, H. Kobayashi), Amsterdam:Elsevier, 1992; p. 11-19.
209. Elias, P.M., Menon, G.K., Proksch, E., Holleran, W.M., Lee, S., Jackson, S., Choi, J.S., Feingold, K.R. Dynamics of epidermal barrier formation, function, and metabolism. In: *The Biology of the Epidermis: Molecular and Functional Aspects* (ed. A. Ohkawara, J.S. McGuire), Amsterdam:Elsevier, p. 3-9, 1992.
210. Bommannan, D., Menon, G.K., Okuyama, H., Elias, P.M., Guy, R.H. Sonophoresis: II. Examination of the mechanism(s) of ultrasound-enhanced transdermal drug delivery. *Pharm. Res.* 9:1043-1047, 1992.

211. Jackson, S.M., Wood, L.C., Lauer, S., Taylor, J.M., Cooper, A.D., Elias, P.M., Feingold, K.R. Effect of cutaneous permeability barrier disruption on HMG CoA reductase, LDL receptor and apoprotein E mRNA levels in the epidermis of hairless mice. *J. Lipid Res.* 33:1307-1314, 1992.
212. Wood, L.C., Jackson, S.M., Elias, P.M., Grunfeld, C., Feingold, K.R. Cutaneous barrier perturbation stimulates cytokine production in the epidermis of mice. *J. Clin. Invest.* 90:482-487, 1992.
213. Holleran, W.M., Takagi, Y., Imokawa, G., Jackson, S., Lee, J.M., Elias, P.M. β -Glucocerebrosidase activity in murine epidermis: Characterization and localization in relationship to differentiation. *J. Lipid. Res.* 33:1201-1209, 1992.
214. Menon, G.K., Elias, P.M., Lee, S.H. Feingold, K.R. Localization of calcium in murine epidermis following disruption and repair of the permeability barrier. *Cell & Tiss. Res.* 270:503-512, 1992.
215. Ghadially, R.G., Williams, M.L., Elias, P.M. Membrane structural abnormalities in the stratum corneum of the autosomal recessive ichthyoses. *J. Invest. Dermatol.* 99:755-763, 1992.
216. Jackson, S.M., Elias, P.M. Pathobiology of the stratum corneum. *West. J. Med.* 158: 279-285, 1993.
217. Pillai, S., Menon, G.K., Bikle, D.D., Elias, P.M. Localization and quantitation of calcium pools and calcium binding sites in cultured human keratinocytes. *J. Cell Physiol.* 154:101-112, 1993.
218. Holleran, W.M., Takagi, Y., Feingold, K.R., Menon, G.K., Legler, G., Elias, P.M. Processing of epidermal glucosylceramides is required for optimal mammalian permeability barrier function. *J. Clin. Invest.* 91:1656-1664, 1993.
219. Mao-Qiang, M., Feingold, K.R., Elias, P.M. Exogenous lipids influence permeability barrier recovery in acetone treated murine skin. *Arch. Dermatol.* 129:728-738, 1993.
220. Williams, M.L., Elias, P.M. From basketweave to barrier: unifying concepts for the pathogenesis of the disorders of cornification. *Arch. Dermatol.* 129:626-629, 1993.
221. Mao-Qiang, M., Feingold, K.R., Elias, P.M., Inhibition of cholesterol and sphingolipid synthesis causes paradoxical effects on permeability barrier homeostasis. *J. Invest. Dermatol.* 101:185-190, 1993.
222. Mao-Qiang, M., Elias, P.M., Feingold, K.R. Fatty acids are required for epidermal permeability barrier function. *J. Clin. Invest.* 92:791-798, 1993.
223. Elias, P.M., Holleran, W.M., Menon, G.K., Ghadially, R., Williams, M.L., Feingold, K.R. Normal mechanisms and pathophysiology of epidermal permeability barrier homeostasis. In: *Current Opinions in Dermatology* (ed. M.V. Dahl, P.J. Lynch) 231-237, 1993.
224. Menon, G.K., Elias, P.M., Feingold, K.R. Integrity of the permeability barrier is crucial for maintenance of the epidermal calcium gradient. *Br. J. Dermatol.* 130:139-147, 1994.
225. Menon, G.K., Bommannan, D.B., Elias, P.M. High-frequency sonophoresis: Permeation pathways and structural basis for enhanced permeability. *Skin Pharm.* 7:130-139, 1994.
226. Menon, G.K., Price, L.F., Bommannan, B., Elias, P.M., Feingold, K.R. Selective obliteration of the epidermal calcium gradient leads to enhanced lamellar body secretion. *J. Invest. Dermatol.* 102:789-795, 1994.
227. Wu-Pong, S., Elias, P.M., Feingold, K.R. Influence of altered serum cholesterol levels and fasting on cutaneous cholesterol synthesis. *J. Invest. Dermatol.* 102:799-802, 1994.

228. Tsai, J.-C., Feingold, K.R., Crumrine, D., Wood, L.C., Grunfeld, C., Elias, P.M. Permeability barrier disruption alters the localization and expression of TNF-alpha protein in the epidermis. *Arch. Derm. Res.* 286:242-248, 1994.
229. Holleran, W.M., Takagi, Y., Menon, G.K., Jackson, S.M., Feingold, K.R., Elias, P.M. Permeability barrier requirements regulate epidermal β -glucocerebrosidase. *J. Lipid Res.* 35:905-912, 1994.
230. Holleran, W.M., Sidransky, E., Menon, G.K., Fartasch, M., Grundmann, J.-U., Ginns, E.I., Elias, P.M. Consequences of β -glucocerebrosidase deficiency in epidermis: Ultrastructure and permeability barrier alterations in Gaucher disease. *J. Clin. Invest.* 93:1756-1764, 1994.
231. Lee, S.H., Elias, P.M., Feingold, K.R., Mauro, T. A role for ions in barrier recovery after acute perturbation. *J. Invest. Dermatol.* 102:976-979, 1994.
232. Wood, L.C., Feingold, K.R., Sequeira-Martin, S.M., Elias, P.M., Grunfeld, C. Barrier function coordinately regulates epidermal IL-1 and IL-1 receptor antagonist mRNA levels. *Exp. Dermatol.* 3:56-60, 1994.
233. Jackson, S.M., Mao-Qiang, M., Elias, P.M., Feingold, K.R. The role of exogenous oxygen in cutaneous barrier repair. *Skin Pharm.* 7:316-319, 1994.
234. Feingold, K.R., Elias, P.M. The cutaneous lesions of Addison's disease. In: Advances in Thomas Addison's Disease. Vol. I. (ed. H.R. Bhatt, V.H.T. James, G.M. Besser, G.F. Bottazzo, H. Keen. Bristol, U.K.: Society for Endocrinology and The Thomas Addison Society, p. 11-20, 1994.
235. Wood, L.C., Elias, P.M., Sequeira-Martin, S.M., Grunfeld, C., Feingold, K.R. Occlusion lowers cytokine mRNA levels in EFAD and normal mouse epidermis, but not after acute barrier disruption. *J. Invest. Dermatol.* 103:834-838, 1994.
236. Halkier-Sorensen, L., Elias, P.M., Menon, G.K., Thestrup-Pedersen, K., Feingold, K.R. Cutaneous barrier function after cold exposure in hairless mice. A model to demonstrate how cold interferes with homeostasis among workers in the fish-processing industry. *Br. J. Dermatol.* 132:391-401, 1995.
237. Holleran W.M., Gao W.N., Feingold, K.R., Elias P.M. Localization of epidermal sphingolipid synthesis and serine palmitoyl transferase activity. *Arch. Dermatol. Res.* 287:254-258, 1995.
238. Ghadially R., Brown B.E., Sequeira-Martin S.M., Feingold K.R., Elias P.M. The aged epidermal permeability barrier: structural, functional, and lipid biochemical abnormalities in humans and a senescent murine model. *J. Clin. Invest.* 95:2281-2290, 1995.
239. Marsh, N.L., Elias, P.M., Holleran, W.M. Glucosylceramides stimulate murine epidermal hyperproliferation. *J. Clin. Invest.* 95:2903-2909, 1995.
240. Brown, B.E., Diembeck, W., Hoppe, U., Elias, P.M. Fate of topical hydrocarbons in the skin. *J. Soc. Cosm. Chem.* 46:1-9, 1995.
241. Ottey, K.A., Wood, L.C., Grunfeld C., Elias, P.M., Feingold, K.R. Cutaneous permeability barrier disruption increases fatty acid synthetic enzyme activity in the epidermis of hairless mice. *J. Invest. Dermatol.* 104:401-404, 1995.
242. Man, M.-Q., Brown, B.E., Wu-Pong, S., Feingold, K.R., Elias, P.M. Exogenous nonphysiologic vs. physiologic lipids: Divergent mechanisms for correction of permeability barrier dysfunction. *Arch. Dermatol.* 131:809-816, 1995.
243. Feingold, K.R., Elias, P.M., Mao-Qiang, M., Fartasch, M., Zhang, S.H., Maeda, N. Apolipoprotein E deficiency leads to cutaneous foam cell formation in mice. *J. Invest. Dermatol.* 104:246-250, 1995.

244. Mao-Qiang, M., Feingold, K.R., Jain, M., Elias, P.M. Extracellular processing of phospholipids is required for permeability barrier homeostasis. *J. Lipid Res.* 36:1925-1935, 1995.
245. Reed, J.T., Ghadially, R., Elias, P.M. Skin type, but neither race nor gender, influence epidermal permeability barrier function. *Arch. Dermatol.* 131:1134-1138, 1995.
246. Elias, P.M., Jackson, S.M. What does normal skin do? In: Cutaneous Medicine and Surgery: An integrated program in Dermatology. Vol. I. (ed. K. Arndt; P. LeBoit, J. Robinson, B. Wintroub). Philadelphia: W.B. Saunders, p. 46-57, 1995.
247. Resnick, S.D., Elias, P.M. Staphylococcal toxin-mediated syndromes. In: Cutaneous medicine and surgery: an integrated program in Dermatology. Vol. II (ed. K. Arndt; P. LeBoit, J. Robinson, B. Wintroub). Philadelphia: W.B. Saunders, p. 931-938, 1995.
248. Yang, L., Mao-Qiang, M., Taljebini, M., Elias, P.M., Feingold, K.R. Topical stratum corneum lipids accelerate barrier repair after tape stripping, solvent treatment and some but not all types of detergent treatment. *Br. J. Dermatol.* 133:679-685, 1995.
249. Menon, G.K., Maderson, P.F.A., Drewes, R.C., Baptista, L.F., Price, L.F., Elias, P.M. Ultrastructural organization of avian stratum corneum lipids as the basis for facultative cutaneous waterproofing. *J. Morphol.* 227:1-13, 1996.
250. Sidransky, E., Fartasch, M., Lee, R.E., Metlay, L.A., Abella, S., Zimran, A., Gao, W., Elias, P.M., Ginns, E.I., Holleran, W.M. Epidermal abnormalities may distinguish Type 2 from Type 1 and Type 3 of Gaucher disease. *Pediatr. Res.* 39:134-141, 1996.
251. Mao-Qiang, M., Jain, M., Feingold, K.R., Elias, P.M. Secretory phospholipase A₂ activity is required for permeability barrier homeostasis. *J. Invest. Dermatol.* 106:57-63, 1996.
252. Hanley, K., Rassner, U., Elias, P.M., Williams, M.L., Feingold, K.R. Epidermal barrier ontogenesis: Maturation in serum-free media and acceleration by glucocorticoids and thyroid hormone but not selected growth factors. *J. Invest. Dermatol.* 106:404-411, 1996.
253. Wood, L.C., Elias, P.M., Calhoun, C., Tsai, J.-C., Grunfeld, C., Feingold, K.R. Barrier disruption stimulates interleukin-1 alpha expression and release from a preformed pool in murine epidermis. *J. Invest. Dermatol.* 106:397-403, 1996.
254. Ghadially, R., Brown, B.E., Hanley, K., Reed, J.T., Feingold, K.R., Elias, P.M. Decreased epidermal lipid synthesis accounts for altered barrier function in aged mice. *J. Invest. Dermatol.* 106:1064-1069, 1996.
255. Mao-Qiang, M., Feingold, K.R., Thornfeldt, C.R., Elias, P.M. Optimization of physiological lipid mixtures for barrier repair. *J. Invest. Dermatol.* 106:1096-1101, 1996.
256. Taljebini, M., Warren, R., Mao-Qiang, M., Lane, E., Elias, P.M., Feingold, K.R. Cutaneous permeability barrier repair following various types of insults: kinetics and effects of occlusion. *Skin Pharmacol.* 9:111-119, 1996.
257. Denda, M., Wood, L.C., Emami, S., Calhoun, C., Brown, B.E., Elias, P.M., Feingold, K.R. The epidermal hyperplasia associated with repeated barrier disruption by acetone treatment or tape stripping cannot be attributed to increased water loss. *Arch. Dermatol. Res.* 288:230-238, 1996.
258. Elias, P.M. Permeability barrier formation, function, and regulation: The role of lipid processing. Proc. 9th Korea-Japan Joint Meeting of Dermatology, Pusan, Korea, November 10-11, 1995, p. 78-108.

259. Hanley, K., Rassner, U., Jiang, Y., Vansomphone, D., Crumrine, D., Komüves, L., Elias, P.M., Feingold, K.R., Williams, M.L. Hormonal basis for the gender difference in epidermal barrier formation in the fetal rat: Acceleration by estrogen and delay by testosterone *J. Clin. Invest.* 97:2576-2584, 1996.
260. Tsai, J-C., Guy, R.H., Thornfeldt, C.R., Feingold, K.R., Elias, P.M. Metabolic approaches to enhance transdermal drug delivery. I. Effect of lipid synthesis inhibitors. *J. Pharm. Sci.* 85:643-648, 1996.
261. Ghadially R., Reed, J.T., Elias, P.M. Stratum corneum structure and function correlates with phenotype in psoriasis. *J. Invest. Dermatol.* 107:558-564, 1996.
262. Elias, P.M. Stratum corneum architecture, metabolic activity, and interactivity with subjacent cell layers. *Exp. Dermatol.* 5:191-201, 1996.
263. Elias, P.M., Ansel, J.C., Woods, L.C., Feingold, K.R. Signalling networks in barrier homeostasis: the mystery widens. *Arch. Dermatol.* 132:1505-1506, 1996.
264. Mao-Qiang, M., Feingold, K.R., Wang, F., Thornfeldt, C.R., Elias, P.M. A natural lipid mixture improves barrier function and hydration in human and murine skin. *J. Soc. Cosmet.Chem.* 47:157-166, 1996.
265. Elias, P.M. The stratum corneum revisited. *J. Dermatol.* 23:756-768, 1996.
266. Liou, A., Elias, P.M., Grunfeld, C., Feingold, K.R., Wood, L.C. Amphiregulin and nerve growth factor expression are regulated by barrier status in murine epidermis. *J. Invest. Dermatol.* 108:73-77, 1997.
267. Hanley, K., Jiang, Y., Elias, P.M., Feingold, K.R., Williams, M.L. Acceleration of barrier ontogenesis in vitro through air exposure. *Pediatr. Res.* 41:293-299, 1997.
268. Haratake, A., Uchida, Y., Mimura, K., Elias, P.M., Holleran, W.M. Intrinsically aged epidermis displays diminished UV-B-induced alterations in barrier function associated with decreased proliferation. *J. Invest. Dermatol.* 108:319-323, 1997.
269. Mao-Qiang, M., Mauro, T., Bench, G., Warren, R., Elias, P.M., Feingold, K.R. Calcium and potassium inhibit barrier recovery after disruption, independent of the type of insult in hairless mice. *Exp. Dermatol.* 6:36-40, 1997.
270. Denda, M., Brown, B.E., Elias, P.M., Feingold, K.R. Epidermal injury stimulates prenylation in the epidermis of hairless mice. *Arch. Dermatol. Res.* 289:104-110, 1997.
271. Holleran, W.M., Galardy, R.E., Gao, W.N., Levy, D., Tang, P.C., Elias, P.M. Matrix metalloproteinase inhibitors reduce phorbol ester-induced cutaneous inflammation and hyperplasia. *Arch. Derm. Res.* 289:138-144, 1997.
272. Haratake, A., Uchida, Y., Schmuth, M., Tanno, O., Yasuda, K., Epstein, J.H., Elias, P.M., Holleran, W.M. UVB-induced alterations in permeability barrier function: Roles for epidermal hyperproliferation and thymocyte-mediated response. *J. Invest. Dermatol.* 108:769-775, 1997.
273. Hanley, K., Jiang, Y., Holleran, W.M., Elias, P.M., Williams, M.L., Feingold, K.R. Glucosylceramide metabolism is regulated during normal and hormonally stimulated epidermal barrier development in the rat. *J. Lipid Res.* 38:576-584, 1997.
274. Wood, L.C., Stalder, A.K., Liou, A., Campbell, I.L., Grunfeld, C., Elias, PM., Feingold, K.R. Barrier disruption increases gene expression of cytokines and the 55kD TNF receptor in murine skin. *Exp. Dermatol.* 6:98-104, 1997.

275. Rassner, U.A., Crumrine, D.A., Nau, P., Elias, P.M. Microwave incubation improves lipolytic enzyme preservation for ultrastructural cytochemistry. *Histochem. J.* 29:387-392, 1997.
276. Denda, M., Kitamura, K., Elias, P.M., Feingold, K.R. trans-4-(Aminomethyl)cyclohexane carboxylic acid (T-AMCHA), an anti-fibrinolytic agent, accelerates barrier recovery and prevents the epidermal hyperplasia induced by epidermal injury in hairless mice and humans. *J. Invest. Dermatol.* 109:84-90, 1997.
277. Hanley, K., Jiang, Y., Crumrine, D., Bass, N.M., Appel, R., Elias, P.M., Williams, M.L., Feingold, K.R. Activators of the nuclear hormone receptors PPAR α and FXR accelerate the development of the fetal epidermal permeability barrier. *J. Clin. Invest.* 100:705-712, 1997.
278. Reed, J.T., Ghadially, R., Elias, P.M. Integrity and permeability barrier function of photoaged human epidermis. *Arch. Dermatol.* 133:395-396, 1997.
279. Holleran, W.M., Uchida, Y., Halkier-Sorensen, L., Haratake, A., Hara, M., Epstein J.H., Elias, P.M. Structural and biochemical basis for the UVB-induced alterations in epidermal barrier function. *Photodermatol. Photoimmunol. Photomed.* 13:1-12, 1997.
280. Zettersten, E.M., Ghadially, G., Feingold, K.R., Crumrine, D., Elias, P.M. Optimal ratios of topical stratum corneum lipids improve barrier recovery in chronologically aged skin. *J. Am. Acad. Dermatol.* 37:403-408, 1997.
281. Elias, P.M., Wood, L.C., Feingold, K.R. Relationship of the epidermal permeability barrier to irritant contact dermatitis. In: Immunology and Allergy Clinics of North America. Vol. 17: Contact Dermatitis: Irritant and Allergic (ed. V. Beltrani) Philadelphia: Saunders, 417-430, 1997.
282. Hanley, K., Devaskar, U.P., Hicks, S.J., Jiang, Y., Crumrine, D., Elias, P.M., Williams, M.L., Feingold, K.R. Hypothyroidism delays fetal stratum corneum development in mice. *Pediatr. Res.* 42:610-614, 1997.
283. Harris, I.R., Farrell, A.M., Grunfeld, C., Holleran, W.M., Elias, P.M., Feingold, K.R. Permeability barrier disruption coordinately regulates mRNA levels for key enzymes of cholesterol, fatty acid, and ceramide synthesis in the epidermis. *J. Invest. Dermatol.* 109:783-787, 1997.
284. Krueger, G.G., Drake, L.A., Elias, P.M., Lowe, N.J., Guzzo, C., Weinstein, G.D., Lew-Kaya, D.A., Lue, J.C., Sefton, J., Chandraratna, R.A.S. The safety and efficacy of tazarotene gel, a topical acetylenic retinoid, in the treatment of psoriasis. *Arch. Dermatol.* 134:57-60, 1998.
285. Menon, G.K., Elias, P.M. Morphologic basis for a pore-pathway in mammalian stratum corneum. *Skin Pharmacol.* 10:235-246, 1997.
286. Chujor, C.S.N., Holleran, W.M., Feingold, K.R., Elias, P.M. Glucosylceramide synthase activity in murine epidermis: Quantitation, localization, regulation, and requirement for barrier homeostasis. *J. Lipid Res.* 39:277-288, 1998.
287. Harris, I.R., Farrell, A.M., Holleran, W.M., Jackson, S., Grunfeld, C., Elias, P.M., Feingold, K.R. Parallel regulation of sterol regulatory element binding protein-2 and the enzymes of cholesterol and fatty acid synthesis but not ceramide synthesis in cultured human keratinocytes and murine epidermis. *J. Lipid Res.* 39:412-422, 1998.
288. Candi, E., Tarcsa, E., DiGiovanna, J.J., Compton, J.G., Elias, P.M., Marekov, L.N., Steinert, P.M. A highly conserved lysine residue on the head domain of type II keratins is essential for the attachment of keratin intermediate filaments to the cornified cell envelope through isopeptide crosslinking by transglutaminases. *PNAS., USA* 95:2067-2072, 1998.

289. Elias, P.M., Nau, P., Hanley, K., Crumrine, D., Bench, G., Sideras-Haddad, E., Mauro, T., Williams, M.L., Feingold, K.R. Formation of the epidermal calcium gradient coincides with key milestones of barrier ontogenesis in the rodent. *J. Invest. Dermatol.* 110:399-404, 1998.
290. Hanley, K., Jiang, Y., Shan Shan H, Friedman, M., Elias, P.M., Bikle, D.D., Williams, M.L., Feingold, K.R. Keratinocyte differentiation is stimulated by activators of the nuclear hormone receptor PPAR α . *J. Invest. Dermatol.* 110:368-375, 1998.
291. Marchell, N.L., Uchida, Y., Brown, B.B., Elias, P.M., and Holleran, W.M. Glucosylceramides stimulate mitogenesis of aged murine epidermis. *J. Invest. Dermatol.* 110:383-387, 1998.
292. Choate, K.A., Williams, M.L., Elias, P.M., Khavari, P.A. Transglutaminase 1 expression in a patient with features of harlequin ichthyosis: Case report. *J. Amer. Acad. Dermatol.* 38:325-329, 1998.
293. Mauro, T., Holleran WM, Grayson, S., Gao, W.N., Mao-Qiang, M., Kriehuber, E., Behne, M., Feingold, K.R., Elias, P.M. Barrier recovery is impeded at neutral pH, independent of ionic effects: implications for extracellular lipid processing. *Arch. Dermatol. Res.* 290:215-222, 1998.
294. Hanley, K., Feingold, K.R., Kömüves, L.G., Elias, P.M., Muglia, L.J., Majzoub, J.A., Williams, M.L. Glucocorticoid deficiency delays stratum corneum maturation in the fetal mouse. *J. Invest. Dermatol.* 111:440-444, 1998.
295. Elias, P.M., Cullander, C., Mauro, T., Rassner, U., Kömüves, L.G., Brown, B.E., Menon, G.K. The secretory granular cell: The outermost granular cell as a specialized secretory cell. *J. Invest. Dermatol. Symposium Proceedings* 3:87-100, 1998.
296. Kömüves, L.G., Hanley, K., Jiang Y., Elias, P.M., Williams, M.L., Feingold, K.R. Ligands and activators of nuclear hormone receptors regulate epidermal differentiation during fetal rat skin development. *J. Invest. Dermatol.* 111:429-433, 1998.
297. Williams, M.L., Hanley, K., Elias, P.M., Feingold, K.R. Ontogeny of the epidermal permeability barrier. *J. Invest. Dermatol. Symposium Proceedings* 3:75-79, 1998.
298. Harris, I.R., Farrell, A.M., Memon, R.A., Grunfeld, C., Elias, P.M., Feingold, K.R. Expression and regulation of mRNAs for putative fatty acid transport related proteins and fatty acyl CoA synthase in murine epidermis and cultured human keratinocytes. *J. Invest. Dermatol.* 111:722-726, 1998.
299. Denda, M., Sato, J., Tsuchiya, T., Elias, P.M., Feingold, K.R. Low humidity stimulates epidermal DNA synthesis and amplifies the hyperproliferative response to barrier disruption: Implication for seasonal exacerbations of inflammatory dermatoses. *J. Invest. Dermatol.* 111:873-878, 1998.
300. Denda, M., Sato, J., Masuda, Y., Tsuchiya, T., Koyama, J., Kuramoto, M., Elias, P.M., Feingold, K.R. Exposure to a dry environment enhances epidermal permeability barrier function. *J. Invest. Dermatol.* 111:858-863, 1998.
301. Zettersten, E., Mao-Qiang, M., Sato, J., Denda, M., Farrell, A., Ghadially, R., Williams, M.L., Feingold, K.R., Elias, P.M. Recessive x-linked ichthyosis: Role of cholesterol-sulfate accumulation in the barrier abnormality. *J. Invest. Dermatol.* 111:784-790, 1998.
302. Farrell, A.M., Uchida, Y., Nagiec, M.M., Harris, I.R., Dickson, R.C., Elias, P.M., Holleran, W.M. UVB irradiation up-regulates serine palmitoyl transferase in cultured human keratinocytes. *J. Lipid Res.* 39:2031-2038, 1998.

303. Mauro, T., Bench, G., Sidderas-Haddad, E., Feingold, K., Elias, P.M., Cullander, C. Acute barrier perturbation abolishes the Ca^{2+} and K^+ gradients in the epidermis: Quantitative measurement using PIXE. *J. Invest. Dermatol.* 111:1198-1201, 1998.
304. Feingold, K.R., Elias, P.M. The biochemical basis and regulation of cutaneous permeability barrier homeostasis. In Skin: Interface of a Living System (ed. H. Tagami, J.A. Parrish, T. Ozawa) Amsterdam: Elsevier, 39-51, 1998.
305. Elias, P.M., Feingold, K.R. A dynamic view of the stratum corneum: applications to skin care. In: Skin: Interface of a Living System (ed. H. Tagami, J.A. Parrish, T. Ozawa) Amsterdam: Elsevier, 141-150, 1998.
306. Elias, P.M., Man M-Q, Thornfeldt, C.R., Feingold, K.R. The epidermal permeability barrier: Effects of physiologic and non-physiological lipids. In: The Lanolin Book (ed. U. Hoppe) Hamburg: Beiersdorf AG, 253-278, 1999.
307. Elias, P.M., Feingold, K.R. Skin as an organ of protection. In: Fitzpatrick's Dermatology in General Medicine (ed. Freedberg, I., et al). Philadelphia: McGraw-Hill, 164-174, 1999.
308. Resnick, S.D., Elias, P.M. Staphylococcal scalded-skin syndrome. In: Fitzpatrick's Dermatology in General Medicine (ed. Freedberg, I., et al). Philadelphia: McGraw-Hill, 2207-2213, 1999.
309. Elias, P.M. The role of biological lipids in skin conditioning. In: Conditioning Agents for Hair and Skin (ed. R. Schueller and P. Romanowski). New York: Marcel Dekker, Inc., 35-56, 1999.
310. Kömüves, L.G., Hanley, K., Jiang, Y., Katagiri, C., Elias, P.M., Williams, M.L., Feingold, K.R. Induction of selected lipid metabolic enzymes and differentiation-linked structural proteins by air exposure of fetal rat skin explants. *J. Invest. Dermatol.* 112:303-309, 1999.
311. Doering, T., Holleran, W.M., Potratz, A., Vielhaber, G., Elias, P.M., Suzuki, K., Sandhoff, K. Sphingolipid activator proteins are required for epidermal permeability barrier formation. *J. Biol. Chem.* 274:11038-11045, 1999.
312. Takagi, Y., Kriehuber, E., Imokawa, G., Elias, P.M., Holleran, W.M. β -glucocerebrosidase activity in mammalian stratum stratum corneum. *J. Lipid Res.* 40:861-869, 1999.
313. Elias, P.M., Mak, V., Thornfeldt, C., Feingold, K.R. Interference with stratum corneum lipid biogenesis: an approach to enhance transdermal drug delivery. In: Percutaneous Absorption (ed. R. Bronaugh; H. Maibach). New York: Marcel Dekker, 1999, p. 411-426.
314. Mao-Qiang, M., Wood, L., Elias, P.M., Feingold, K.R. Cutaneous barrier repair and pathophysiology following barrier disruption in IL-1 and TNF Type I receptor deficient mice. *Exp. Dermatol.* 8:261-266, 1999.
315. Fartasch, M., Williams, M.L., Elias, P.M. Altered lamellar body secretion and stratum corneum membrane structure in Netherton's syndrome: Differential diagnosis from other infantile erythrodermas and pathogenic implications. *Arch. Dermatol.* 135:823-832, 1999.
316. Elias, P.M., Wood, L.C., Feingold, K.R. Epidermal pathogenesis of inflammatory dermatoses. *Am. J. Contact Derm.* 10:119-126, 1999.
317. Elias, P.M. The Death of Medicine in Nazi Germany (Wolfgang Weyers, M.D.) Book Review. *Arch. Dermatol.* 135:1132-1135, 1999.
318. Yosipovich, G., Mevorah, B., David, M., Feinmesser, M., Hodak, E., Gabay, B., Ammash, J., Elias, P.M. Migratory ichthyosiform dermatosis with type 2 diabetes mellitus and insulin resistance. *Arch. Dermatol.* 135:1237-1242, 1999.

319. Hanley, K., Kömüves, L., Bass, N.M., He, S.S., Jiang, Y., Crumrine, D., Appel, R., Friedman, M., Bettencourt, J., Min, K., Elias, P.M., Williams, M.L., Feingold, K.R. Fetal epidermal differentiation and barrier development in vivo is accelerated by nuclear hormone receptor activators. *J. Invest. Dermatol.* 113:788-795, 1999.
320. Oda, Y., Imanzahri, A., Kwong, A., Kömüves, L., Elias, P.M., Largman, C., Mauro, T. Epithelial sodium channels are upregulated during epidermal differentiation. *J. Invest. Dermatol.* 113:796-801, 1999.
321. Rassner, U.A., Feingold, K.R., Crumrine, D.A., Elias, P.M. Coordinate assembly of lipids and enzyme proteins into epidermal lamellar bodies. *Tissue & Cell* 31:489-498, 1999.
322. Feingold, K.R., Elias, P.M. The environmental interface: regulation of permeability barrier homeostasis. In: Dry Skin and Moisturizers: Chemistry and Function (ed. M. Lodén, H.I. Maibach) Boca Raton, Fla: CRC Press, 1999, p. 45-58.
323. Elias, P.M., Holleran, W.M., Calhoun, C.J., Quiec, D., Brown, B.E., Behne, M., Feingold, K.R. Permeability barrier homeostasis: the role of lipid processing. In: Dry Skin and Moisturizers: Chemistry and Function (ed. M. Lodén, H.I. Maibach) Boca Raton, Fla: CRC Press, 1999, p. 59-70.
324. Elias, P.M., Williams, M.L. Notes to an aspiring dermatologist in the year 2000. *Arch. Dermatol.* 136:37-40, 2000.
325. Jiang, S.J., Sang, M.H., Choi, E.H., Elias, P.M., Ahn, S.K., Lee, S.H. Structural and functional effects of oleic acid and iontophoresis on hairless mouse stratum corneum. *J. Invest. Dermatol.* 114:64-70, 2000.
326. Behne, M., Uchida, Y., Seki, T., Ortiz de Montellano, P., Elias, P.M., Holleran, W.M. Omega-hydroxyceramides are required for corneocyte lipid envelope (CLE) formation and normal epidermal permeability barrier function. *J. Invest. Dermatol.* 114:185-192, 2000.
327. Oda, Y., Tu, C.-L., Chang, W., Crumrine, D., Komuves, L., Mauro, T., Elias, P., Bikle, D.D. The calcium sensing receptor and its alternatively spliced form in murine epidermal differentiation. *J Biol. Chem.* 275:1183-1190, 2000.
328. Denda, M., Tsuchiya, T., Elias, P.M., Feingold, K.R. Stress alters cutaneous permeability barrier homeostasis. *Amer. J. Physiol.* 278:R367-R372, 2000.
329. Elias, P.M. Normalization of skin function with topical lipids. In: Delivery Systems for Cosmetic Active Ingredients (ed. L.M. Savage) Southborough, MA: Drug and Market Development Publications, 1999, p. 81-102.
330. Elias, P.M., Magin, T. Barrier function in K-10 heterozygote knockout mice (letter). *J. Invest. Dermatol.* 114:396-397, 2000.
331. Hanley, K., Ng, D.C., He, S.S., Lau, P., Min, K., Elias, P.M., Bikle, D., Mangelsdorf, D.S., Williams, M.L., Feingold, K.R. Oxysterols induce differentiation in human keratinocytes and increase Ap-1-dependent involucrin transcription. *J. Invest. Dermatol.* 114:545-553, 2000.
332. Menon, G.K., Elias, P.M. The epidermal barrier and strategies for surmounting it: An overview. In: The Skin and Gene Therapy (eds. U.R. Hengge, B. Volc-Platzer) Springer, 2000, p. 1-26.
333. Williams, M.L., Elias, P.M. Ichthyosis: where we have been; disorders of cornification: where we are going. *Curr. Probl. Dermatol.* 12:170-176, 2000.

334. Hanley, K., Komuves, L.G., Ng, D.C., Schoonjans, K., He, S.S., Lau, P., Bikle, D.D., Williams, M.L., Elias, P.M., Auwerx, J., Feingold, K.R. Farnesol stimulates differentiation in epidermal keratinocytes via PPAR α . *J. Biol. Chem.* 275:11484-11491, 2000.
335. Williams, M.L., Elias, P.M., Feingold, K.R. Regulation of differentiation in newborn human keratinocytes by endogenous ligands of nuclear hormone receptors. *J. Skin Barrier Res.* 2:3-21, 2000.
336. Kömüves, L.G., Hanley, K., Lefebvre, A.M., Man, M.-Q., Ng, D.C., Bikle, D.D., Williams, M.L., Elias, P.M., Auwerx, J., Feingold, K.R. Stimulation of PPAR α promotes epidermal keratinocyte differentiation in vivo. *J. Invest. Dermatol.* 115:353-360, 2000.
337. Kömüves, L.G., Hanley, K., Man, M.-Q., Elias, P.M., Williams, M.L., Feingold, K.R. Keratinocyte differentiation in hyperproliferative epidermis: Topical application of PPAR α activators restores tissue homeostasis. *J. Invest. Dermatol.* 115:361-367, 2000.
338. Schmuth, M., Man, M.-Q., Weber, F., Gao, W., Feingold, K.R., Fritsch, P., Elias, P.M., Holleran, W.M. Permeability barrier disorder in Niemann-Pick disease: Sphingomyelin-ceramide processing is required for normal barrier homeostasis. *J. Invest. Dermatol.* 115:459-466, 2000.
339. Elias, P.M., Fartasch, M., Crumrine, D., Behne, M., Uchida, Y., Holleran, W.M. Origin of the corneocyte lipid envelope (CLE): Observations in Harlequin ichthyosis and cultured human keratinocytes. *J. Invest. Dermatol.* 115:765-769, 2000.
340. Uchida, Y., Hara, M., Nishio, H., Sidransky, E., Inoue, S., Otsuka, F., Suzuki, A., Elias, P.M., Holleran, W.H., Hamanaka, S. Epidermal sphingomyelins are precursors for selected stratum corneum ceramides. *J. Lipid Res.* 41:2071-82, 2000.
341. Garg, A., Chren, M.-M., Sands, L.P., Matsui, M.S., Marenus, K.D., Feingold, K.R., Elias, P.M. Psychological stress perturbs epidermal permeability barrier homeostasis: Implications for the pathogenesis and treatment of stress-associated skin disorders. *Arch. Dermatol.* 137:53-59, 2001.
342. Kao, J.S., Garg, A., Mao-Qiang, M., Crumrine, D., Ghadially, R., Feingold, K.R., Elias, P.M. Testosterone perturbs epidermal permeability barrier homeostasis. *J. Invest. Dermatol.* 116:443-451, 2001.
343. Elias, P.M., Matsuyoshi, N., Wu, H., Lin, C., Wang, Z.H., Brown, B.E., Stanley, J.R. Desmoglein isoform distribution affects stratum corneum structure and function. *J. Cell Biol.* 153:243-249, 2001.
344. Allen, A., Siegfried, E., Silverman, R., Williams, M.L., Elias, P.M., Szabo, S.K., Korman, N.J. Significant absorption of topical tacrolimus in 3 patients with Netherton Syndrome. *Arch. Dermatol.* 137:747-750, 2001.
345. Fluhr, J.W., Jain, M., Feingold, K.R., Kao, J., Elias, P.M. Generation of free fatty acids from epidermal phospholipids regulates stratum corneum acidification and integrity. *J. Invest. Dermatol.* 117:44-51, 2001.
346. Hanley, K., Wood, Ladonna, Ng., D.C., He, S.S., Lau, P., Moser, A., Elias, P.M., Bikle, D.D., Williams, M.L., Feingold, K.R. Involucrin transcription and expression of Fra-1, Fra-2, and Jun D are increased by cholesterol sulfate in human keratinocytes. *J. Lipid. Res.* 42:390-398, 2001.
347. Elias, P.M., Feingold, K.F. Does the tail wag the dog? Role of the barrier in the pathogenesis of inflammatory dermatoses and therapeutic implications. *Arch. Dermatol.* 137:1079-1081, 2001.
348. Chamlin, S.L., Frieden, I.J., Fowler, A., Williams, M.L., Kao, J., Sheu, M., Elias, P.M. Ceramide-dominant, barrier-repair lipids improve childhood atopic dermatitis. *Arch. Dermatol.* 137:1110-1112, 2001.
349. Elias, P.M., Feingold, K.R. Coordinate regulation of epidermal differentiation and barrier homeostasis. *Skin Pharmacol. Appl. Phys.* 14 (Suppl 1):28-34, 2001.

350. Wang, F., Man, M-Q, Elias, P.M., Lee, S.H. Skin capacitance in psoriasis and ichthyosis. *J. Skin Barrier Res.* 3:89-92, 2001.
351. Schmuth, M., Yosipovitch, G., Williams, M.L., Hintner, H., Rappersberger, K., Crumrine, D., Feingold, K.R., Elias, P.M. Pathogenesis of the permeability barrier abnormality in epidermolytic hyperkeratosis. *J. Invest. Dermatol.* 117:837-847, 2001.
352. Uchida, Y., Behne, M., Quiec, D., Elias, P.M., Holleran, W.M. Vitamin C stimulates sphingolipid production and markers of barrier formation in submerged human keratinocyte cultures. *J. Invest. Dermatol.* 117:1307-1313, 2001.
353. Elias, P.M., Wood, L.C., Feingold, K.R. The skin and its barrier function: Implications for wound healing. In: Wound Healing and the Skin (ed. V. Falanga) London: Martin Dunitz, 2001.
354. Behne, M.J., Elias, P.M., Mauro, T.M. The antiporter NHE1 influences the function of the SC pH gradient. *J. Skin Barrier Res.* 3:3-10, 2001.
355. Whang, S.W., Lee, S.H., Elias, P.M., Feingold, K.R., Choi, E.H., Ahn, S.K. Intralesional steroids reduce inflammation from extravasated chemotherapeutic agents. *Br J Dermatol* 145:680-682, 2001.
356. Elias, P.M., Mak, V., Thornfeldt, C., Feingold, K.R. Interference with stratum corneum lipid biogenesis: an approach to enhance transdermal drug delivery. In: Topical Absorption of Dermatological Products (ed. R. Bronaugh; H. Maibach). New York: Marcel Dekker, 2002, p. 261-274
357. Komuves, L.G., Schmuth, M., Fowler, A.J., Elias, P.M., Hanley, K., Man, M-Q, Moser, A.H., Lobaccaro, J-M A, Williams, M.L., Mangelsdorf, D.J., Feingold, K.R. Oxysterol stimulation of epidermal differentiation is mediated by liver X receptor-beta in murine epidermis. *J. Invest. Dermatol.* 118:25-34, 2002.
358. Sheu, M.Y., Fowler, A.J., Kao, J., Schmuth, M., Schoonjans, K., Auwerx, J., Fluhr, J.W., Man, M-Q, Elias, P.M., Feingold, K.R. Topical peroxisome proliferator activated receptor-alpha activators reduce inflammation in irritant and allergic contact dermatitis models. *J. Invest. Dermatol.* 118:94-101, 2002.
359. Elias, P.M., Ghadially, R. The aged epidermal permeability barrier: Basis for functional abnormalities. In: Geriatric Dermatology, Part II, Clin. Ger. Med. 18:103-120, 2002.
360. Chen, Hubert C., Smith, Steven J., Tow, Bryan, Elias, Peter M., Farese, Robert V. Leptin modulates the effects of DGAT1 deficiency on fur and sebaceous glands in mice. *J. Clin. Invest.* 102:175-181, 2002.
361. Tsuruoka, H., Khovdhunkit, W., Brown, B.E., Fluhr, J.W., Elias, P.M., Feingold, K.R. Scavenger receptor class B type 1 (SR-B1) is expressed in cultured keratinocytes and epidermis: regulation in response to changes in cholesterol homeostasis and barrier requirements. *J Biol Chem.* 277:2916-2922, 2002.
362. Mauro T, Guitard M, Behne M , Oda Y, Crumrine D, Komuves L, Rassner U, Elias PM, Hummler E. The ENaC channel is required for normal epidermal differentiation. *J. Invest. Derm.* 118: 589-594, 2002.
363. Chuong CM, Nickoloff BJ, Elias PM, Goldsmith LA, Macher E, Maderson PA, Sundberg JP, Tagami H, Plonka PM, Thestrup-Pederson K, Bernard BA, Schroder JM, Dotto P, Chang CM, Williams ML, Feingold KR, King LE, Kligman AM, Rees JL and Christophers E. What is the 'true' function of skin? *Exp Dermatol*, 11:159-187, 2002.
364. Elias, P. M., Schmuth, M., Uchida, Y., Rice, R. H., Behne, M., Crumrine, D., Feingold, K. R., Holleran, W. M. Basis for the permeability barrier abnormality in lamellar ichthyosis. *Exp Dermatol* 11: 248-256, 2002.

365. Schmuth, M., Wimmer, M. A., Hofer, S., Sztankay, A., Weinlich, G., Linder, D. M., Elias, P. M., Fritsch, P. O., Fritsch, E. Topical corticosteroid therapy for acute radiation dermatitis: a prospective, randomized, double-blind study. *Br J Dermatol* 146: 983-991, 2002.
366. Ye, J., Garg, A., Calhoun, C., Feingold, K. R., Elias, P. M. and Ghadially, R. Alterations in cytokine regulation in aged epidermis: implications for permeability barrier homeostasis and inflammation. *Exp Dermatol* 11: 209-216, 2002.
367. Darmstadt, G.L., M. Mao-Qiang, E. Chi, S.K. Saha, V.A. Ziboh, R.E. Black, M. Santosham, Elias, P.M. Impact of topical oils on the skin barrier: possible implications for neonatal health in developing countries. *Acta Paediatr*, 91: 546-554, 2002.
368. Chamlin, S.L., J. Kao, I.J. Frieden, M.Y. Sheu, A.J. Fowler, J.W. Fluhr, M.L. Williams, Elias, P.M. Ceramide-dominant barrier repair lipids alleviate childhood atopic dermatitis: Changes in barrier function provide a sensitive indicator of disease activity. *J Am Acad Dermatol*. 47: 198-208, 2002
369. Sato J, Denda M, Chang S, Elias PM, Feingold KR. Abrupt decreases in environmental humidity induce abnormalities in permeability barrier homeostasis. *J Invest Dermatol*. 119: 900-904, 2002.
370. Elias PM, Feingold KR, Tsai J, Thornfeldt C, Menon G. Metabolic approach to transdermal drug delivery. In: Transdermal Drug Delivery. Vol 123. Second Edition (Richard H. Guy, Jonathan Hadgraft, eds.) New York: Marcel Dekker, 2002, p. 285-304.
371. Fluhr, J.W., Elias, P.M. Stratum corneum pH: formation and function of the "acid mantle". *Exog. Dermatol*, 1:163-175, 2002.
372. Schmuth, M. Schoonjans, K., Yu, Q-C, Fluhr, J.W., Crumrine, D., Hachem, J-P, Lau, P., Auwerx, J, Elias, P.M., Feingold, K.R. Role of peroxisome proliferator activated receptor (PPAR) -alpha in epidermal development in utero. *J. Invest. Dermatol*, 119:1298-1303, 2002
373. Elias, P.M., Ahn, S.K., Brown B.E., Feingold, K.R. Origin of the epidermal calcium gradient: Regulation by barrier status and role of active vs. passive mechanisms. *J. Invest. Dermatol*, 119:1269-1274, 2002.
374. Behne, M.J., Meyer, J., Hanson, K.M., Barry, N.P., Crumrine, D., Murata, S., Clegg, R.W., Gratton, E., Holleran, W.M., Elias, P.M., Mauro, T.M. NHE1 regulates the stratum corneum permeability barrier homeostasis: microenvironment acidification assessed with FLIM. *J. Biol. Chem*, 277:47399-47406, 2002.
375. Elias, P.M., Tsai, J., Menon, G.K., Holleran, W.M., Feingold, K.R. The potential of metabolic interventions to enhance transdermal drug delivery. *J. Invest. Dermatol. Symp Proc*. 7:79-85, 2002.
376. Elias, P.M., Ahn, S.K., Denda, M., Brown, B.E., Crumrine, D., Kimutai, L.K., Komuves, L., Lee, S.H., Feingold, K.R. Modulations in epidermal calcium regulate the expression of differentiation-specific markers. *J Invest Dermatol* 119:1128-1136, 2002.
377. Uchida, Y., Murata, S., Schmuth, M., Behne, M.J., Lee, J.D., Ichikawa, S., Elias, P.M., Hirabayashi, Y., Holleran, W.M. Glucosylceramide synthesis and synthase expression protect against ceramide-induced stress. *J Lipid Res* 43:1293-1302, 2002.
378. Proksch E., Jensen, J-M, Elias, P.M. Skin lipids and epidermal differentiation in atopic dermatitis. *Clin Dermatol*. 21:123-143, 2003.
379. Fowler, A.J., Sheu, M.Y., Schmuth, M., Kao, J., Fluhr, J.W., Rhein, L., Collins, J.L., Wilson, T.M., Mangelsdorf, D.J., Elias, P.M., Feingold, K.R. Liver X receptor activators display anti-inflammatory activity in irritant and allergic contact dermatitis models: liver-x-receptor-specific inhibition of inflammation and primary cytokine production. *J. Invest. Dermatol*. 120:246-255, 2003.

380. Kao, J.S., Fluhr, J.W., Man, M.Q., Fowler, A.J., Hachem, J.P., Crumrine, D., Ahn, S.K., Brown, B.E., Elias, P.M., Feingold, K.R. Short-term glucocorticoid treatment compromises both permeability barrier homeostasis and stratum corneum integrity: inhibition of epidermal lipid synthesis accounts for functional abnormalities. *J Invest Dermatol* 120:456-464, 2003.
381. Elias, P.M., Feingold, K.R., Fluhr, J.W. Chapter 9, Skin as an organ of protection. In: Fitzpatrick's Dermatology in General Medicine (ed. Freedberg, I., et al). Philadelphia: McGraw-Hill, 2003, 107-118.
382. Resnick, S.D., Elias, P.M. Chapter 195, Staphylococcal Scalded Skin Syndrome. In: Fitzpatrick's Dermatology in General Medicine (ed. Freedberg, I., et al). Philadelphia: McGraw-Hill, 2003, 1878-1883.
383. Uchida, Y., Nardo, A.D., Collins, V., Elias, P.M., Holleran, W.M. De novo ceramide synthesis participates in the ultraviolet B irradiation-induced apoptosis in undifferentiated cultured human keratinocytes. *J Invest Dermatol* 120:662-669, 2003.
384. Elias, P.M., Tsai, J-C, Menon, G.K., Holleran, W.M., Feingold, K.R. Skin barrier and percutaneous drug delivery in: Dermatology (ed. J. Bolognia, J. Jorizzo, R. Rapini et al.) Mosby: London: Mosby, 2003, 1968-1974.
385. Fluhr, J., Mao-Qiang, M., Brown, B., Wertz, P.W., Crumrine, D., Sundberg, J.P., Feingold, K.R., Elias, P.M. Glycerol regulates stratum corneum hydration in sebaceous gland deficient (asebia) mice. *J. Invest Dermatol* 120:728-737, 2003.
386. Behne, M.J., Barry, N.P., Hanson, K.M., Aronchik, I., Clegg, R.W., Gratton, E., Feingold, K., Holleran, W.M., Elias, P.M., Mauro, T.M. Neonatal development of the stratum corneum pH gradient: localization and mechanisms leading to emergence of optimal barrier function. *J Invest Dermatol* 120:998-1006, 2003.
387. Schmuth, M., Elias, P.M., Feingold, K.R. Beyond glucocorticoids, retinoids and vitamin D - the evolution of nuclear hormone type transcription factor targeting in the skin. (In German) *J. German Dermatol. Soc.* 1:352-362, 2003.
388. Hachem, J.P., Crumrine, D., Fluhr, J., Brown, B.E., Feingold, K.R., Elias, P.M. pH directly regulates epidermal permeability barrier homeostasis, and stratum corneum integrity/cohesion. *J Invest Dermatol* 121:345-353, 2003.
389. Williams, ML, Elias, PM. Enlightened therapy of the disorders of cornification. *Clin Dermatol* 21:269-273, 2003.
390. Rice, RH, Crumrine, D, Hohl, D, Munro, CS, Elias, PM. Cross-linked envelopes in nail plate in lamellar ichthyosis. *Br. J. Dermatol* 149:1050-1054, 2003.
391. Stone SJ, Myers HM, Watkins SM, Brown BE, Feingold KR, Elias PM and Farese RV, Jr. Lipopenia and skin barrier abnormalities in DGAT2-deficient mice. *J Biol Chem*, 2003.
392. Barland CO, Zettersten E, Brown BS, Ye J, Elias PM and Ghadially R. Imiquimod-induced interleukin-1 alpha stimulation improves barrier homeostasis in aged murine epidermis. *J Invest Dermatol*, 122:330-336, 2004.
393. Schmuth M, Fluhr JW, Crumrine D, Uchida Y, Hachem JP, Behne M, Moskowitz, DG, Christiano, AM, Feingold K and Elias PM. Structural and functional consequences of loricrin mutations in human loricrin keratoderma (Vohwinkel syndrome with ichthyosis). *J Invest Dermatol*. 122:909-922, 2004.
394. Westerberg R, Tvrđik P, Unden AB, Mansson JE, Norlen L, Jakobsson A, Holleran WH, Elias PM, Asadi A, Flodby P, Toftgård R, Capecci MR and Jacobsson A. Role for ELOVL3 and fatty acid chain length in development of hair and skin function. *J Biol Chem*, 279:5621-5629, 2004.

395. Elias PM. The epidermal permeability barrier: from the early days at Harvard to emerging concepts. *J Invest Dermatol*, 122:XXXVI-IX, 2004.
396. Elias PM, Crumrine D, Rassner U, Hachem JP, Menon GK, Man W, Choy MH, Leypoldt L, Feingold KR, Williams ML. Basis for abnormal desquamation and permeability barrier dysfunction in RXLI. *J Invest Dermatol*, 122:314-319, 2004.
397. Fluhr JW, Behne MJ, Brown BE, Moskowitz DG, Selden C, Mao-Qiang M, Mauro TM, Elias PM and Feingold KR. Stratum corneum acidification in neonatal skin: secretory phospholipase A2 and the sodium/hydrogen antiporter-1 acidify neonatal rat stratum corneum. *J Invest Dermatol*, 122:320-329, 2004.
398. Bikle, DD, Chang, S, Crumrine, D, Elalieh, H, Man, M-Q, Choi, EH, Dardenne, O, Xie, Z, St. Arnaud, R, Feingold, K, Elias, PM. 25 hydroxyvitamin D 1 alpha-hydroxylase is required for optimal epidermal differentiation and permeability barrier homeostasis. *J Invest Dermatol*. 122:984-992, 2004.
399. Schmuth, M, Haqq, CM, Cairns, WJ, Holder, JC, Dorsam, S, Chang, S, Lau, P, Fowler, AJ, Chuang, G, Moser, AH, Brown, BE, Man, M-Q, Uchida, Y, Schoonjans, K, Auwerx, J, Chambon, P, Willson, TM, Elias, PM, Feingold, KR. Peroxisome proliferator-activated receptor (PPAR)- β/α stimulated differentiation and lipid accumulation in keratinocytes. *J Invest Dermatol*. 122:971-983, 2004.
400. Fluhr JW, Mao-Qiang M, Brown BE, Hachem JP, Moskowitz DG, Demerjian M, Haftek M, Serre G, Crumrine D, Mauro TM, Elias PM and Feingold KR. Functional consequences of a neutral pH in neonatal rat stratum corneum. *J Invest Dermatol*. 123:140-151, 2004.
401. Schmuth M, Elias PM, Hanley K, Lau P, Moser A, Willson TM, Bikle DD, Feingold KR. The effect of LXR activators on AP-1 proteins in keratinocytes. *J Invest Dermatol*, 123:41-48, 2004.
402. Moskowitz, DG, Fowler, AJ, Heyman, MB, Cohen, SP, Crumrine, DC, Elias, PM, Williams, ML. Pathophysiological basis for growth failure in children with ichthyosis: an evaluation of cutaneous ultrastructure, epidermal permeability barrier function, and energy expenditure. *J Pediatr*. 145:82-92, 2004.
403. Mao-Qiang, M, Fowler, AJ, Schmuth, M, Lau, P, Chang, S, Brown, BE, Moser, AH, Michalik, L, Desvergne, B, Wahli, W, Li, M, Metzger, D, Chambon, PH, Elias, PM, Feingold, KR. Peroxisome proliferator-activated receptor (PPAR)-gamma activation stimulates keratinocyte differentiation. *J Invest Dermatol*. 123:305-312, 2004
404. Bikle, DD, Chang, S, Crumrine, D, Elalieh, H, Man, M-Q, Dardenne, O, Xie, Z, St. Arnaud, R, Feingold, KR, Elias, PM. Mice lacking 250 HD 1 α -hydroxylase demonstrate decreased epidermal differentiation and barrier function. *J Steroid Biochemistry & Molecular Biology*. 89-90:347-353, 2004.
405. Hara-Chikuma M, Takeda J, Tarutani M, Uchida Y, Holleran WM, Endo Y, Elias PM and Inoue S. Epidermal-specific defect of GPI anchor in pig-a null mice results in harlequin ichthyosis-like features. *J Invest Dermatol*, 123:464-469, 2004.
406. Presland RB, Coulombe PA, Eckert RL, Mao-Qiang M, Feingold KR, Elias PM. Barrier function in transgenic mice overexpressing k16, involucrin, and filaggrin in the suprabasal epidermis. *J Invest Dermatol*, 123:603-606, 2004.
407. Descargues, P, Deraison, C, Bonnart, C, Kreft, M, Kishibe, M, Ishida-Yamamoto, A, Elias, PM, Barrandon, Y, Zambruno, G, Sonnenberg, A, Hovnanian, A. Spink5-deficient mice mimic Netherton syndrome through degradation of desmoglein 1 by epidermal protease hyperactivity. *Nature Genetics*, 37:56-65, 2005.
408. Choi, EH, Brown, BE, Crumrine, D, Chang, S, Man, M-Q, Elias, PM, Feingold, KR. Mechanisms by which psychologic stress alters cutaneous permeability barrier homeostasis and stratum corneum integrity. *J Invest Dermatol*, 124: 587-595, 2005.

409. Elias, PM. Ceramides, Lipids, and Barrier Repair. In Cosmeceuticals (ed. Z. Drauelos) Naughton, Kent; 63-70, 2005.
410. Ting, SB., Caddy, J, Hislop, N, Wilanowski, T, Auden, A, Zhao, LL, Ellis, S, Kaur, P, Uchida, Y, Holleran, WM, Elias, PM, Cunningham, JM, Jane, SM. A homolog of Drosophila grainy head is essential for epidermal integrity in mice. *Science* 308: 411-413 2005.
411. Elias, PM. Stratum corneum defensive functions: an integrated view. *J Invest Dermatol*, 125:183-200, 2005.
412. Choi, EH, Man, M-Q, Wang, F, Zhang, X, Brown, BE, Feingold, KR, Elias, PM. Is endogenous glycerol a determinant of stratum corneum hydration in humans? *J Invest Dermatol*, 125:288-293, 2005.
413. Elias, PM. Consulting activities. In EDF White Book, Skin Diseases in Europe 2nd Ed. (eds. P. Fritsch, W. Burgdorf) ABW Wissenschaftsverlag GmbH, Berlin; 155-160, 2005.
414. Miyazaki, M., Dobrzyn, A., Elias, P.M., Ntambi, J.M. Stearoyl-CoA desaturase-2 gene expression is required for lipid synthesis during early skin and liver development. *PNAS*, 102:12501-12506, 2005.
415. Hachem, JP, Behne, M, Aronchik, I, Demerjian, M, Feingold, KR, Elias, PM and Mauro, TM. Extracellular pH Controls NHE1 Expression in Epidermis and Keratinocytes: Implications for Barrier Repair. *J Invest Dermatol*. 125:790-797, 2005.
416. Hachem, JP, Man, MQ, Crumrine, D, Uchida, Y, Brown, BE, Rogiers, V, Roseeuw, D, Feingold, KR and Elias, PM. Sustained serine proteases activity by prolonged increase in pH leads to degradation of lipid processing enzymes and profound alterations of barrier function and stratum corneum integrity. *J Invest Dermatol*. 125:510-520, 2005.
417. Jiang, YJ, Kim, P, Elias, PM and Feingold, KR. LXR and PPAR activators stimulate cholesterol sulfotransferase (SULT2B1b) in human keratinocytes. *J Lipid Res*. 2005.
418. Lu, B, Jiang, YJ, Man, MQ, Brown, B, Elias, PM and Feingold, KR. Expression and regulation of 1-acyl-sn-glycerol-3-phosphate acyltransferases in the epidermis. *J Lipid Res*. 2005.
419. Elias, PM, Feingold, KR. The epidermal lamellar body: a multifunctional, secretory organelle. *J Skin Barrier Res*. 7:11-22, 2005.
420. Feingold, KR, Elias, PM, Schmuth, M., Man, M-Q. The role of PPARs and LXRs in the regulation of epidermal structure and function. *J Skin Barrier Res*. 7:53-64, 2005.
421. Williams, ML, Schmuth, M, Crumrine, D, Hachem, J-P, Bruckner, AL, Demerjian, M, Elias, PM. Pathogenesis of the ichthyosis: update and therapeutic implications. *J Skin Barrier Res*. 7:122-133, 2005.
422. Rice, R.H., Crumrine, D., Uchida, Y., Gruber, R., Elias, P.M. Structural changes in epidermal scale and appendages as indicators of defective TGM1 activity. *Arch Dermatol Res*: 1-7, 2005.